

**PROCEEDINGS OF THE BROWN COUNTY**  
**HUMAN SERVICES COMMITTEE**

Pursuant to Section 19.84 Wis. Stats., a regular meeting of the **Brown County Human Services Committee** was held on Wednesday, January 27, 2016 in Room 200 of the Northern Building, 305 E. Walnut Street, Green Bay, Wisconsin.

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**Present:** Chair Evans, Supervisor Robinson, Supervisor La Violette, Supervisor Hoyer  
**Excused:** Supervisor Haefs  
**Also Present:** Supervisors Schadewald, Jamir, Sieber, Van Dyck, Kristen Hooker, Erik Pritzl, Luke Schubert, Cressie Birder, the media and other interested parties.

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**I. Call Meeting to Order.**

The meeting was called to order by Chair Evans at 5:33 p.m.

**II. Approve/Modify Agenda.**

**Motion made by Supervisor La Violette, seconded by Supervisor Robinson to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

**III. Approve/Modify Minutes of November 18, 2015.**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

**Comments from the Public:**

Barbara Vanden Boogart – 7463 Holly Mor Road, Greenleaf

Vanden Boogart stated that since Brown County Health Director Chua Xiong announced her decision on December 15, 2015 a lot of people had been asking questions including Shirley Wind residents, residents of other existing proposed wind projects in Wisconsin and other states, government officials and especially experts and authors from across the globe who were perplexed at how after reading their studies and findings Xiong could come to the conclusion that there was not a relationship between health effects and wind turbines located in proximity to people. She and others will be asking some of those questions tonight and she began by asking the following. There were affidavits representing 50 citizens suffering adverse health effects and in access of 80 complaints, five of Glenmore Town Clerk, Duke Energy and Brown County Health Department. Per the December 15, 2015 Board of Health Minutes, Chua Xiong stated, "I have also listened to the concern expressed by the citizens affected by the wind turbines." Vanden Boogart directed questions to Xiong in an effort to encourage her to answer them and she asked the board members to ask the same questions of her: Have you read the affidavits and complaints of these affected citizens? Do you believe these affidavits and complaints have merit? Do you believe their reports that their symptoms diminish or cease when they are away from the Shirley wind turbines? Do you know the names of those affected citizens? How many of these affected citizens did you interview? How many of the homes of these affected citizens did you spend time in? How do you account for your failure of due diligence in not interviewing more of the affected residents or visiting any of their homes? At the December 15, 2015 Board of Health meeting, you stated, "I have been given the responsibility of reviewing the scientific evidence based literature and making a determination if there is a health hazard as it relates to the Shirley Wind Turbine Project." Who charged you with using only this one dimensional literature review approach rather than considering all the information at your disposal? The 5/12/2015 Board of Health Minutes stated that the Chair Audrey Murphy, regarding the information submitted to Chua Xiong, that "The most important of these binders is the blue binder." These minutes further state, "Audrey recommended starting with the blue Shirley Wind binder as that was the critical one." Why did you ignore the blue binder information and only do a literature review? Was it your belief that the affidavits representing 50 citizens suffering from adverse health effects from the Shirley Wind Turbines which represent legal evidence, the personal accounts and the extensive infrasound low frequency noise studies by Richard James at Shirley Wind are irrelevant or inconsequential evidence compared to the purely academic literature review? Do you claim that you personally have carefully read all of the documents submitted to you before you reached that decision? If not

then, which documents did you carefully review? Which documents did you not read and why? Did you have Caroline Harvey read some of the documents that were submitted and rely on her assessment of those documents without reading them yourself? Were some of the submitted documents neither read by you nor by Caroline? What methodology and selection criteria did you use and review in the submitted documents? Who determined what method and selection criteria to use? Did you or Caroline Harvey assess any of the submitted documents to be biased, if so, which ones? If so who decided they were biased? What objective standards were used to determine biased? Did you carefully read Steven Cooper's groundbreaking scientific evidence based infrasound low frequency noise study at Cape Bridgewater where a clear relationship was demonstrated between wind turbine operation and adverse health symptoms and sensations? If so, how did you dismiss his findings and conclude that there is no relationship between wind turbines and health impacts? If you fail to read it, why? Do you understand that the levels of infrasound and low frequency measure at the Shirley Wind Project and the distances to affected homes are equivalent to those at Cape Bridgewater? Did you carefully read Keith Spelling's document describing the history of the knowledge of human health impacts from wind turbines, wind turbine infrasound and low frequency emissions? If so, how do you dismiss the extensive scientific decade long research by NASA and the US Department of Energy infrasound and low frequency noise emissions from both downwind and upwind utility scale wind turbines comparable in size to those at Shirley Wind? Which documents did you rely upon most heavily for your decision? What evidence-based documents did you rely upon that provides sufficient scientific evidence proving that the wind turbine emissions are not adversely affecting the health of children, adults and the elderly? When did you decide what your decision would be? How many weeks before you made your announcement had you reached that decision? Have you produced a report that includes a written response to each and every one of the studies submitted to you as to why they support your contention that there is insufficient scientific evidence based research to support the relationship between wind turbines and health issues? If so, where is the report? Who actually drafted the report? What contribution did you provide? What contribution did each draftee provide, 10%, 30%, 50%, etc.? I am requesting that you provide a report which includes your analysis and conclusion of each reference you personally reviewed as well as a separate report for each reference Caroline Harvey personally reviewed and the rationale for rejecting any references that were not reviewed by either of you. How did the recent addition to the ICD-10-CMT 77.23 code, the medical code, which addresses vertigo caused by infrasound, affect your decision?

Robinson informed that as someone who was unable to be a part of the Board of Health meetings where this had been discussed in the past and had not had a chance to hear Xiong's presentation or information; it was hard for him to put into context what they were saying. He would give his full attention if people wanted to present now but know that that was part of the difficulty for him. Evans informed he wasn't planning on opening the floor after but would open the floor after the update and discussion of research conducted by Health Department Director, Item 5.

La Violette stated that at least 50-60 questions were raised and for their Health Department Director to answer each one of those questions tonight would be foolhardy, she didn't know how the Chairman wanted to conduct that so it was more focused. It was her understanding that the Health Department asked her to file a report and she did and like Robinson, she had not been at the Health Board meetings but she certainly heard a lot of due report over several years about these wind turbines. She believed what she said but when she was the Director of the Library for 49 years, the people she valued the most highly were the ones that had courage enough to tell her how they felt on an issue. It took great courage because often she disagreed with them and they knew ahead of time she disagreed with them but she valued them so highly because they told her the truth as they saw it and she didn't want to ever do anything to any department head or Brown County staff to make them feel like they had to tell them something other than what they truly believed. She was going to support the resolution that Supervisor Schadewald brought forward because it was more than a Brown County issue.

**Report from Human Services Chair, Patrick Evans** No report.

1. **Review Minutes of:**
  - a. **Aging & Disability Resource Center Board of Directors (October 22 & December 10, 2015).**
  - b. **Aging & Disability Resource Center Executive/Finance Committee (June 25, 2015).**
  - c. **Aging & Disability Resource Center Nominating & Human Resources Committee (October 17, 2014).**
  - d. **Board of Health (October 13, 2015).**
  - e. **Children with Disabilities Education Board (December 8, 2015).**
  - f. **Criminal Justice Coordinating Board (November 19, 2015).**
  - g. **Human Services Board (November 13, 2015).**
  - h. **Mental Health Ad Hoc Committee (October 29, 2015).**
  - i. **Veterans' Recognition Subcommittee (November 17 & December 15, 2015).**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to suspend the rules to take Items 1a-i together. Vote taken. MOTION CARRIED UNANIMOUSLY**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to approve Items 1a-i. Vote taken. MOTION CARRIED UNANIMOUSLY**

### Communications

2. **Communication from Supervisor Schadewald re: This letter is my request for the Human Services Committee to support a resolution requesting the Wisconsin Governor and State Legislature to fund a medical study of the effects of the Shirley Wind Farm wind turbines on the health of local residents.**

Supervisor Schadewald was looking to begin in Brown County the process of not their County Board but asking other County Board's to seek the return of the \$250,000 that was originally in the governor's budget for a study of the wind turbines medical effects. He felt it would behoove the Human Services Committee to support such a resolution, take it to the County Board floor and have it sent onward to state legislators and the governor.

Hoyer questioned if Madison had done any research on the Shirley wind farm. Schadewald was unaware but knew the \$250,000 was in the biannual budget for a medical study and taken out and he was asking for its return to help all of the people of Wisconsin.

Robinson questioned if this was similar to the letter that County Executive was circulating for signature after the last County Board asking for support from the state for doing this? It was Schadewald understanding that he was also looking at perhaps county support but couldn't speak for him. He saw and signed it but believed it was a multi-county effort. Robinson informed he signed it as well; he would support this but would personally like to see them go a little beyond the \$250,000. Robinson believed a study that was done in 2011 was Public Service Commission sponsored and they could sort of say that that was the state but certainly more needed to be done.

Evans was all in support of this, he found it interesting that the County Executive never asked him to sign anything. He asked the Chairman of the Board of Health about this issue and asked him to comment on this. Dr. Tibbets stated that he did not think that another study at this time would lend anything that hadn't been determined by the study at Cape Bridgewater. Rick James in a letter to the Public Service Commission in March made note of the comparison of Shirley study and the Cape Bridgewater study and could compare them pretty well. He didn't think that anything could be done as far as any kind of study until they had control over Duke Energy running of the wind turbines. He would like to remind that the Cape Bridgewater study was done with complete cooperation with the power company and with the guys that were doing the study. That certainly had not been forthcoming to this date from Duke Energy and he felt it was going to be quite some time until Duke Energy cooperates unless there was some overriding legal ramifications that would come. That being the case, going forth with this study was a moot issue until that was settled. When it was settled, what were they planning on gaining that they hadn't already gained? The Cape Bridgewater study was very comprehensive. He didn't really see anything that was going to be gained at this time with the parameters that were used. Another consideration was who was going to do this study? There were some conflicts in the state. The University of Wisconsin Medical School, which perhaps would be a prime place to ask for this study had some conflicts with GE, Siemens and so on, same with Marquette. They would have to find someone independent and those people exist but this really had to be looked from the standpoint of conflict of interest or they were going to be in some real murky place. The last thing, the amount of money, as Schadewald said, there was \$250,000 in the budget that was taken out. Probably \$500,000 wasn't going to be adequate, it would probably be around \$750,000 to a million dollars. He just didn't see repeating something that had already been done.

Addressing Dr. Tibbets, Robinson thanked him for speaking. This particular communication talked about a medical study, Robinson questioned if there were medical doctors that had done studies who had come out and demonstrated, connecting the effects of low frequency and infrasound to the medical conditions that people had been experiencing. Tibbets responded, yes, he could think of an orthopedic surgeon in Canada. There were a number of people but they weren't scanned and they hadn't done anything that he knew of that hadn't been addressed with the studies that they were doing now. Robinson understood that there was a lack of medical physicians either scanned and/or non-existent. His sense of this was that a medical study would contribute, not just to this situation,

but to the general field of what needed to be accomplished in this area. Thinking that that might be the case, he questioned if Schadewald would be open to the following verbiage added to the end of his communication: On the health of local residents *"done preferably with the ability to interrupt wind turbine operation as a control."* The reason he suggest adding it was in speaking with Assistant Corporation Counsel, it had been his hope that they might look at how they, as a county, could take legal action to force Duke Energy to do that. What he heard back from Corporation Counsel was that it was beyond the authority of the county to be able to do that, it was a state and PSC action and that's why it would be important to include that because the resolution was talking about the state acting. Schadewald had no problem with it. He added that at their last Board of Health meeting, they also heard that there may be a proviso in the agreement with Glenmore where they could shut it down but these were unsubstantiated claims. Robinson was looking at the Cape Bridgewater information and that was a huge piece to be able to do that. He felt that that might be an outlet for some of their energy, to try to make that piece of it happen.

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to add to the end of the resolution: *"done preferably with the ability to interrupt wind turbine operation as a control."* Vote taken. MOTION CARRIED UNANIMOUSLY**

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

Understanding what Dr. Tibbets said, Evans was in support of this, he didn't necessarily believe they needed another study because then everyone had a reason to say that they didn't have to do anything now because the state at some point was going to do a study, etc. It was interesting that they were having a discussion and they needed a study because of the wind turbines, to him it signified that they understood that there were issues and problems and to him everyone was afraid to take action on this. He'll go along with the committee and he felt the County Board will go along with it.

Schadewald stated they were all learning a lot about this issue and part of the reason was at the December Board of Health meeting they had people from all over Wisconsin and people who were actually trying to attempt to have wind turbines in their counties, locals and towns, etc. He felt part of the reason that the communication should be sent down to state legislators was to heighten the awareness of this. He since learned that the actual proof of this whole situation, not just here but worldwide, was someone somewhere was going to do a study of a population for a time and then put in wind turbines and then study the people afterwards. According to the person that talked to him, that was the very best possibly study to prove the causation. They weren't there so he wanted to help now. Understand that part of it was that they had to start it somewhere, the people here had brought it to the Board of Health, Fond du Lac was going to talk about it next Tuesday and it was being talked about all over.

Dennis Stenz – W2217 County Road WH, Mt. Calvary, WI

Stenz informed that he represented District 12, Fond du Lac County. Town of Marshfield and Town of Calumet were the districts that had 88 turbines.

3. **Communication from Supervisor Schadewald: Re: a) If the Human Services Committee considers increasing the size of membership of the Board of Health, I request that at least one (1) new member of the Board of Health be a County Board supervisor and b) I request an update from the Human Services Committee on the mental health funds added to the 2016 budget.**

Evans informed that item "b" will be handled later on under the Director's Report. They didn't have a communication to increase the size of the board, he talked to the Chairman of the Board of Health and he said they would like to discuss this at the Board of Health, so Evans wanted to send that portion there.

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to forward to the Board of Health. Vote taken. MOTION CARRIED UNANIMOUSLY**

4. **Communication from Supervisor Zima re: That the County Board review the charges made to bars and restaurants for their licenses to determine if they're being charged inappropriately, if there are two beverage bars within the respective facility. Also, please notify the Brown County Tavern League as they have an interest in this matter.**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to hold until next month. Vote taken.  
MOTION CARRIED UNANIMOUSLY**

**Health Department**

**5. Update and discussion of research conducted by Health Department Director.**

Health Director Chua Xiong presented a PowerPoint (attached).

Robinson informed that what he heard quite a bit of was that Xiong didn't see a connection between the wind turbines and the health issues that people had been experiencing. He wanted to clarify because what he was hearing her say at this point, it was her opinion that there was insufficient scientific evidence to support that view. She was just commenting on the data that met the criteria that was laid out, Xiong agreed. He wanted to make sure they got it out clearly that that's what she was saying. Xiong responded that there were not enough scientific evidence studies to link wind turbines to health outcomes. They were missing the medical community. They talked about the Cape Bridgewater, in their conclusion, they did say that they needed more scientific rigor to the study; they needed sound engineers and incorporating the medical health profession. A big part of what was missing; there were a lot of studies out there and those studies were looking at the sound measurements. Cape Bridgewater was a sound study that was done. It wasn't truly a research study. The other thing with Cape Bridgewater was a small sample size population that was looked at. Even the individuals who did the Cape Bridgewater, towards the end, they stated it was a preliminary draft and that it wasn't for recommendation to legislation and that they also felt that there needed to be further research studies because they needed the medical health professions in on this. It was the study design that was not there so when she talked about causation, they had to have a baseline health outcome measurement, then the individuals were exposed and then they do a health outcome to see if there was causation. There were a lot of components missing. When she was using the scientific process to evaluate the written materials that were submitted to her, not all were research studies so she used that process. That was a process she used in graduate school that was taught to her. If they were going to look at research science, they needed to look at the credibility of the research science so she went through that process and could not pull that out because they were missing the medical community and the health outcomes. They had a lot in the sound area but there was not that connection to getting the medical community on board and that's what they needed.

Robinson stated, a control and introduction of a change in the environment was mentioned, in this case the operation of wind turbines and the study afterwards, he believed would be the Cadillac version of how to do this. There were other ways of doing it, coming to that conclusion or doing that research without that particular model, so when they ask the state for funding to do a study, it didn't have to be, although that would be the best, it was also a rather lengthy process timewise, so it was possible to do other models of studies that would be shorter in duration that would provide scientifically valid information, even if it wasn't the best Cadillac design, Xiong agreed. One of those studies was an epidemiological distribution study where they looked at patterns of symptoms, patterns of health issues and try and relate those into environmental factors that might be prevalent in those areas. Xiong responded that that would be a component of having the medical piece in there as well. She was not aware of any studies like that that had been conducted. She reiterated that what they were missing, a lot of the sound studies mention in their conclusion, even sound engineers state that they felt uncomfortable because they were sound engineers and they needed the medical, health outcome component of it as well. There were a lot of studies on the sound and then you go into trying to say that the sound causes the health outcome, they were missing the study design where they needed an Epidemiologist, they needed a medical professional, they needed sound engineer, it required that collaborative group to come together and work on it.

Responding to Hoyer, Xiong explained that she was looking at all research studies including sound studies. What's happening was, it was the specialty, it was their sound engineer but they couldn't hop over and say, yep now its health outcomes, they needed the medical community to be in on it and they needed to have those baseline health outcomes. Hoyer felt it was sort of about connecting the dots, Xiong agreed. Hoyer stated the issues of the sound to the health impacts of that sound were not there. Xiong added that when they were sampling population, they needed to look at whole population; they couldn't just sample individuals that had complaints. In a well-designed study, they needed to make sure they were studying the whole population. The challenge was to have a research study where

they were looking at the whole population and they were looking at connection those dots where the sound and the health outcomes were measured really well so that they knew that the wind turbines were the cause of the health outcomes, the symptoms.

Evans thanked Xiong and for putting together the presentation, it was very professionally done and he commended her on that. He supported her position very well so he appreciated what she brought forward. There was a question with regard to the blue binder. Xiong informed that the blue binder was put together by the Brown County Responsible Wind Energy and it was given to all the Board of Health members including the director. It had affidavit of complaints, a sound study by Rick James, four sound surveys that was done by the state with a request to Clean Air. Robinson interjected, it was a 2011 study, Xiong agreed. Evans appreciated the analysis but wanted to bring it closer to home, to his back yard which was Brown County, he questioned her opinion on the blue binder. Xiong informed that she looked at the blue binder and she used the same scientific process with Rick James and with the surveys. They were not research studies, they were sound studies. She didn't discard them, she used her scientific process. They don't have the health outcomes in those sound studies. She reiterated that when looking at those sound studies, they indicate that further research needed to be done and the health part of it needed to be in there. She needed medical doctors to come up and be willing to attest to that and state this is my patient, I am their doctor, they are having these symptoms and they are exposed to wind turbine and I can attest to that. She doesn't have any medical doctor and Brown County has Aurora, Bellin, Prevea, big healthcare systems in the area and no doctor supporting that. As a Health Officer she had insufficient scientific evidence based data, she didn't have the medical community behind her and those were the things she thought about and could only use what she had. She was looking at the data that was there. She did read the blue binder and look at it.

Referring to the affidavits that represented 50 citizens within the blue book, legal document, his question was, is there a problem with wind turbines in Brown County making these people sick? Xiong responded that those were affidavits of complaints, she did read them and she was aware of them but they weren't scientific evidence based. Evans questioned if they had merit. Xiong reiterated that she read the affidavits and was aware of the complaints but she still had to look at the scientific evidence based studies that were out there. Evans stated that he was perplexed with her emotions at the December 15<sup>th</sup> meeting. Xiong informed she was a human being and could empathize with everyone and the symptoms that they have but she still had to look at the scientific evidence research to make a sound decision. Because she showed emotions, it didn't mean it was scientific evidence based, she showed emotion because she was a human. She can feel for being regardless if it was wind turbine or whatever condition they were facing. Evans questioned what she would consider sufficient scientific data? Xiong reiterated that they had to have scientific evidence based research that showed causality. That's where more research studies needed to be done, on proving causality. Evans questioned how many studies of causality needed to be done; he believed there was one in Portugal? Xiong responded that there needed to be more. Robinson stated that it depended on what the study showed, Xiong agreed.

Evans stated he was there to question, it was part of what they did in government, they had very difficult debates in their families, they had difficult debates at work, they had difficult debates in government, this was a big issue, she was charged with a great responsibility and he wasn't giving anyone a free pass. He stood for the people. La Violette interjected that she stood for the people. Evans wanted to get to the point where they can figure out what they can do to protect the people in his backyard, in Brown County. He had been out there, he had talked to people and he had seen things and he had to believe that they were suffering. He appreciated that she said she was human. He questioned what she was looking for that she hadn't seen in the information or the data?

Xiong again reiterated that she was looking for studies that had health outcomes in it, it had to measure the health outcomes, the studies that they had now was only sound. It needed to be a collaboration where they were looking at sound engineers and they were also looking at Epidemiologists who did the study design and they needed medical doctors as well so that they were measuring health outcomes.

Robinson informed that he had a conversation earlier with Assistant Corporation Counsel about the ability to legally force Duke to interrupt their service in order to do tests. It was his understanding from Corporation Counsel that was probably not very likely for them to do that. Robinson asked what Xiong thought about the importance of being able to shut those wind turbines down just for the moment to do control testing in terms of causality of symptoms, etc.

Would that be a significant opportunity to gather medical evidence that would support or disprove this? She felt it would still be difficult because they had to have baseline health outcomes before being exposed to the wind turbine and have causation. Robinson questioned if there were other types of studies that could be done that would show some valid information if they were able to do that? Xiong believed that this was where they needed to go out independently and work with an Epidemiologist or the medical community; it would be something that would require those efforts. Robinson agreed, he was saying if they got the medical professionals in the right place and they were able to conduct that kind of study by shutting those wind turbines down, interrupt them in order to do that. Would that start to move towards that kind of evidence that would prove or disprove? Xiong responded, yes, those were the studies that they needed. She would support that it goes out independently and have either the county or the state fund a research study.

The reason Robinson brought it up, as a Human Services Committee, it was his understanding they had no legal say in her actions in this matter. This was her decision as the head of the Health Department, it was her call. He appreciated her coming here to inform them because he had learned some things tonight. He was trying to figure out some way, given this was her decision, he wanted to back her and be supportive of that and trust her conclusions, however, he was trying to figure out some way that they can at least in some form or fashion move this forward. Both Robinson and Hoyer in 2012/13 went out and visited some of the homes and talked with some of the people out there and he personally believed that people don't move out of their homes just because they were bothered by flicker or whatever it might be. He had to believe something was going on, he didn't know what. That didn't mean that there was sufficient evidence, he was saying from a personal standpoint. He questioned how they practically move forward. Frankly, if people wanted to be upset at someone, and he counted himself among this, they needed to be upset with the state because that's really where the control for this was and that's really where the action needed to happen. That's where the money was, that's where the PSC was and where the laws were. How did they move from the point they were now to a point where they actually get something done? He felt Schadewald's communication was a piece of that. He felt trying to take, maybe it was a long shot but try and take some legal action to try to force Duke to submit to an interruption service to do some testing. He wasn't suggesting that this was the only answer; it was just a piece of it. He felt they could all agree on and maybe they could all work together to make that happen.

Assistant Corporation Counsel Kristen Hooker stated they were missing the scientific evidence to justify going to court and asking to sort of put the cart before the horse. Robinson wasn't trying to disagree with her but a lot of references were made to the 2012 Shirley Wind Study and at the end of it, sponsored by the PSC there was a statement that stated they thought something was going on, more study needed to be done. That's a state sponsored legal document that stated they needed more studies, they had a health department director that stated they needed more studies and this was the kind of study. That to him was something they could at least work with and give it a shot. He felt along with Supervisor Schadewald's action, he would be supportive of them looking at legal action to try and force Duke Energy to run that kind of study, because there seemed to be sufficient information to support the need to do that kind of research.

La Violette thanked Dr. Tibbets for all the work he had put into this but it bothered her that no doctors that she knew of in Brown County had stepped forward to support these people. Tibbets may be the only one. She knew he sent letters to all of the clinics but questioned if there was anything that they could do to engage the medical community because that was a major missing piece. She strongly supported going to the state because she had driven around the state a lot and there seemed to be so many wind turbines. If they tried to fight the fight in Brown County, what's to say that an adjacent county couldn't put up a wind turbine that would affect your house? They were foolish, they keep in so many instances, they let the state take over and they let them off the hook. It was time that they stop letting the state off the hook, this was a statewide issue.

Tibbets informed that they had tried in 2014 to enlist the cooperation, sending letters to nine clinics, the three major, Bellin Health, Aurora and Prevea. It was an educational thing, sent out on Board of Health stationary. It was nothing other than trying to get some information out and the Medical Director from Prevea refused to distribute it. He followed up with all the clinics, Bellin, Aurora and the smaller clinics, all of them cooperated as far as getting things out. They did get a referral from one of the clinics, ENT Associates on Webster and Eliza. But in large doctors were very complacent and they didn't want to rock the boat and they didn't want to participate in anything, that's what he understood and couldn't explain.

Hoyer questioned if Xiong saw the \$2 million dollar study from Canada? Xiong stated she had, the things was that there were a lot of states that pulled counsels together, like the Massachusetts one she shared with them. There were states that had pulled team members in to look at the research that was out there and they took had said that it was insufficient and they couldn't find the scientific evidence to link wind turbines to health outcomes. It wasn't just her, there were other states had pulled panels in to look at those scientific evidence based research and had also come to the same conclusion that there was not enough of scientific evidence based to link wind turbines to health outcomes. So, if they were looking at trying to work at this collaboratively, it needed to be an independent team to come and work together. She was only one as the Health Director and it wasn't just wind turbines that she was working with. She was working with other communicable disease, she was working with other health issues in Brown County and if they really wanted to focus in on the wind turbines they really needed to have a bigger group and they had to be interdisciplinary and really start to look at the issue and look at strategies to help these individuals. She was only one and they really needed more people to be looking at this.

Hoyer questioned, as a scientist could she imagine some laboratory studies that would help connect the dot between sound and how people were feeling. Xiong informed that she would have to defer to the scientists that do those research studies. To her knowledge she was not aware of it being done. Hoyer responded that at the end of the day, no matter what the discipline, the important thing was that they couldn't put all their eggs in one particular articles basket and when you look at a broader spectrum of things, you get a clearer idea, they begin to know patterns, etc.

Evans stated that if her conclusion was that wind turbines was not causing the reported suffering and her duty was to protect the health of Brown County residents, going forward how did she plan to investigate, determine or protect these issues? Xiong responded to continue to look at the credible scientific evidence literatures that come out, also working with the personal medical doctors, personal qualified healthcare professionals affidavits. Those are their patients and they were seeing those patients before the wind turbine and after the wind turbine, and if these healthcare professionals step up to the plate and come along with her, that would be great. Those were things that she was looking at. That's why she stated in her conclusion she would continue to accept any new current creditable scientific evidence based literature and also accept medical doctor affidavits.

It was Evans understanding that Xiong felt there was not scientific credible data linking suffering to wind turbines? Xiong, agreed, symptoms to wind turbines. He questioned how they address the people of Brown County that had come to the Board of Health, to the Human Services Committee, come to her? Xiong reiterated that they needed a group to come together; she was only one as the Health Officer. Evans stated he understood but she had a great amount of power. Xiong responded, yes but she needed to have a larger group and it can't just be her and it had to be the medical community at large, it had to be the schools, it had to be Epidemiologist, etc. Evans questioned if she acknowledged that the people out there were suffering. Xiong stated as a human being she can acknowledge anyone that was suffering but scientific evidence based literature and looking at that data was separate from that. As a human being she empathized with them but she also had to use the scientific evidence based research to make her sound decision. Evans questioned if wind turbines out in Shirley causing these people to be sick. Xiong empathized that they were having symptoms but she didn't know if it was because of the wind turbine because the scientific evidence base was not there. Evans stated they could not like her answer and he didn't have to accept it, and questioned what her plans were going forward to investigate why these people were sick, what was the Health Department going to do? Xiong answered, that's where the scientific evidence research study needed to be there. She can't do the scientific evidence based research. She will continue to accept new and current creditable scientific evidence based research and speaking to the doctors that will testify that these individuals had symptoms. Evans stated, let's not worry about the WTGs study, he wanted to know how was she, as the Health Department was going to investigate, go out and talk to these people, and try to find out why they were suffering then. Xiong responded that the doctors were the ones that assessed the individuals for symptoms, she wasn't their doctor. La Violette questioned what they could do as a committee to engage the doctors? Hoyer questioned if they should create a taskforce? Evans stated they had the Board of Health. Hoyer felt that wasn't the same thing, he was talking about something with a panel of doctors, Epidemiologists, etc.

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to open the floor to allow interested parties to speak. Vote taken. MOTION CARRIED UNANIMOUSLY**



William Acker - 3217 Nicolet Drive, Green Bay

Acker informed that he had his own consulting engineering firm called Acker and Associates and he had been working on this issue for about eight years now starting with the cooling tower downtown Green Bay. Originally he was going to speak on the document he submitted to the Health Department at the last meeting. A document he prepared to help him put information together that he felt was relevant to a law firm that might eventually take on this issue. Information he felt was really strong indications that these people were ill and that they were experiencing the symptoms they were explaining. At the December 15, 2015 meeting, Xiong stated that presently there was insufficient scientific evidence based research to support the relationship between wind turbines and health concerns. Referring to Item 24 on page 27 of his handout, Acker read the partial statement by Epidemiologist Carl V. Phillips to the Public Service Commission of Wisconsin. As part of his testimony, Carl V. Phillips submitted a document on Docket No. 1-AC-231 which was document PSC REF#:134274 on page 28 of Acker's handout. In that document he made a couple really important statements, "There is ample scientific evidence to conclude that wind turbines cause serious health problems for some people living nearby. Some of the most compelling evidence in support of this has been somewhat overlooked in previous analysis, including that the existing evidence fits what is known as case-crossover study design." Part of which he covered in this document that he submitted to the Health Department. He furthered, "one of the most useful studies in epidemiology, and the revealed preference (observed behavior) data of people leaving their homes, etc., which provides objective measures of what would otherwise be subjective phenomena. In general this is an exposure-disease combination where causation can be inferred from a small number of less formal observations than is possible for cases such as chemical exposure and cancer risk." Phillips also makes the statement that, "Epidemiology is the study of actual health outcomes in people, and thus is the only science that can directly inform us about actual health risks from real-world exposures. Related biological and physical sciences often provide useful information about health risks, but they are ultimately trumped by epidemiology because real-world exposures and the human body and mind are so complex that we cannot effectively predict and measure health effects except by studying people and their exposures directly."

In the document that he submitted to the Health Department, there were many epidemiology relationships that he had shown that clearly show that these people's outcomes and symptoms are real. One study done by a doctor, where he had a subject group that was in the wind turbine zone and a controlled group of people outside the wind turbine zone. These people had to fill out questionnaires about how they were feeling and they had to do it on an hourly basis. What was significant about that study was that when you look at the health questions that these people were given, almost in every single case the subject group that were in the wind turbine zone were experiencing all types of symptoms where the controlled group wasn't experiencing anything. That to him was very good evidence. Another very significant one to him was the NASA study of a 2 megawatt wind turbine, which was the very first industrial wind turbine ever built and installed, that wind turbine brought on symptoms to the people who lived in that community area. At that time the Department of Energy was trying to develop technology for future business for the United States, but in that instance, these people had all the same symptoms that the people in Shirley Wind had. So you can't say this was psychosomatic because there was no knowledge of these types of symptoms at the time that that turbine started up. That was earth shattering information. He suggested the committee read the document. It will take them through a lot of the issues that he had gone through.

Acker brought up the potential lawsuit costs due to personal injury. They had two very important issues. One, trying to determine whether the symptoms were real. On the other side of the issue, the county had to weigh not just the cost of a potential lawsuit against Duke but also lawsuit costs to Brown County when the day came that they proved the illnesses were real? Not just to Duke and to other parties involved in this? In the health impacts he personally believed in sleep disturbance, headaches including migraines, fluid built up in the ear, ear pressure, ear pain, balance problems, dizziness, vertigo, nausea, irritability, anxiety, visual blurring, problems concentrating and memory, panic episodes and fast heart rate. He had no doubt that those all were issues from the pressure pulsations of the blades of the wind turbines but there were also some very serious health issues that were being studied at numerous universities around the world which were even more concerning to him in a potential lawsuit information against Brown County if they wait too long to protect their public. He had no doubt that there was loss of hearing and tinnitus, how about miscarriages. There had been significant miscarriages of animals exposed to wind turbines. One was 1,600 miscarriages of mink next to a wind farm that had the largest wind turbines installed in the land, 3 megawatt units. They scare the hell out of him. The evidence that they had clearly showed that the bigger the wind turbines got, the higher the infrasound and the greater the pressure pulsations off those units. He hoped to God that

they didn't see any 3 megawatt units in Brown County but the move in the wind turbine industry was to go to bigger and bigger units. Shirley Wind had 2.5 megawatt. He was definitely convinced that's why they were having such a significant health impact there. If they went to 3 megawatts he felt they would see a lot more problems. There was also fibrosis, thickening and scarring of connective tissue as a result of injury. This would include lung tissue, heart tissue, blood vessel wall thickening, trachea wall thickening, cardiac valves and damage to the cilia of the respiratory tract. These were all current studies and it was referred to as Vibroacoustic Disease. These items in particular are probably going to take a long time for the medical industry to definitively prove these things so it was going to be a lot like the tobacco industry where some of these things will take a long time to prove.

In talking about the liability, he personally believed that the people that were injured, when the day came, that they feel comfortable going forward with the lawsuit. He did believe the cost could potentially be \$500,000 per person. The McDonald's coffee case where a woman had spilled hot coffee on her was a \$3 million dollar settlement that was eventually reduced to \$600,000. The costs were determined by medical expenses, lost earnings, future lost income, future medical costs, property value and pain and suffer, which was usually determined by adding all those costs and then multiplying by a factor of 1.5-5.0 so it can be huge. Potential number of claims, he believed in Shirley there was a potential for 1,135 people being injured and many of these people don't know it. The ones that he listed as serious health issues, those were things that people were not going to be aware of. They were exposed to it and it took a long time for the damages to occur. They now had a \$5.675M cost to just pay for these people's injuries, and that didn't cover the court costs. Then who got pulled into the lawsuit? The law firm that would be representing the injured people didn't make that decision. It would go into a court of law and the judge would make the decision, this is what happened in the Fox River Cleanup. He saw Duke Energy being pulled into it, Brown County, Emerging Energy, the Brown County Health Department and Director Chua Xiong. Will insurance cover the injury cost and court cost, perhaps not if it was proven that there was negligence or professional misbehavior. Such as, did Brown County take the action to protect the public when they had sufficient evidence? His suggestion was that Xiong consider carrying some liability insurance, this was a common practice by engineers that worked at engineering firms that perhaps their engineering firm may not offer proper protection. Also nurses a lot of time carry liability insurance. It would be a good reason to carry liability insurance. How much worse could Brown County's liability become in the future if they allowed additional installation of wind turbines. Wind turbine projects today were generally anywhere from 50-140. Shirley was only 8, a tiny little installation. Say an average of 100 wind turbines on the next project, if 100 wind turbines were installed, he estimate that the number of people impacted could easily be from 1,600-3,500 people. So if they multiply that times \$500,000 and add to the original \$567 million, they now had \$1.8 billion dollars just for the liability costs, not talking about the court costs. Because of the high potential costs associated with industrial wind turbines, he felt it was a good idea for Brown County to issue a moratorium on all future industrial wind turbines until they full understand the negative effects or until the industry designs a wind turbine that did not produce high levels of low frequency noise and infrasound which significantly reduced the pressure pulsations. He felt it was possible to accomplish this by using a 100 kilowatt wind turbine instead of the 2.5 and 3 megawatt units, because back in those days, when these were only on farms, these smaller wind turbines did not produce the pressure pulsations and the significant amount of infrasound and the current studies on wind turbines clearly showed that the low frequency noise infrasound increases drastically from a 1 kilowatt unit to a 3.5 megawatt unit.

In regards to studies, when it came to the Shirley Wind study, it was extremely difficult to get a fair study, it was corrupt from the beginning and they had to work extremely hard to get representation by acoustical engineers and in addition to that, even when the document was written, they had one group totally rewrite the document and submit it to the state as it was submitted by the acoustical engineers and fortunately the state stopped and prevented the document from going on the docket. He was very concerned about a future study and the ability to keep politics out of a good study. The Cape Bridgewater study was an excellent study. It did include medical evidence because they did the noise testing, the people in the zone of the wind turbines kept diaries, they should have had a controlled group as well but the utility would not allow a controlled group to be in the study so they decided to do it without the controlled group. What it showed, this wasn't just shutting the turbines off and starting them back up again, the utility participated in providing wind turbine performance data showing the electrical output and that way they could with the diaries that were kept on an hourly basis, see what the response was from those diaries as the wind turbine went up and power output and its wind speed went up and it correlated extremely well. The other thing that they learned from that document, the one thing that really irritated the people the most was when the turbines were

starting up and shutting down and they had people here of Shirley wind that talk about the same thing and they had that capability to sense it.

He personally didn't believe there was a real lot to be gained by an additional study. There could be some things that could be gained with epidemiology analysis but the biological analysis that they were looking for was going to take many years to come. They did have some good laboratory studies which Xiong didn't mention. One was done with guinea pigs, it was a type of analysis that could not be done on humans. They opened the brains of guinea pigs and put sensors on their brains to see if they were being irritated by the exposure, they were irritated and when they opened up the bodies they found damage to the inner ear cells of the ear. There were other studies also that found damage to the inner ear that was conducted using laboratory noise that was in the low frequency zone.

*Supervisor La Violette excused at 7:22 p.m.*

Jim Vanden Boogart, 7463 Holly Mor Road, Greenleaf

Vanden Boogart stated that Ms. Xiong informed that only five documents that met her standards, one was the Massachusetts report and one was the Wisconsin Wind Siting Counsel report. Neither one of those was peer reviewed. Each was a literature review by a group of people. They weren't studies. At a previous Board of Health meeting Professor Terry from UWGB called the Massachusetts report pure review. When the Board of Health went through that whole issues with the Massachusetts report and realized that it had been broadly torn apart as junk science. He had submitted numerous critiques to Ms. Xiong to that affect from professionals, from doctors, from PhDs, dismantling the Massachusetts report. So the fact that she leaned so heavily on that really made him question the validity that she came up with. Secondly, wind siting rules went into effect in 2012, they were originally proposing 2010. By statute the Wind Siting Counsel was obligated to do a review, five years later to find out how those rules were working now and that put the responsibilities with Wind Siting Counsel. Vanden Boogart was the alternate member for the Chairman of the Wind Siting Counsel and he was very intimately involved with proceedings of that five year review. He would say without exaggeration that he put 1,000 into that in 2013-2014. He worked great detail with the chairman and several other members. The problem with the Wind Siting Counsel was by statute it was stacked with pro-wind interests and people who weren't benefit directly and indirectly from the proliferation of wind turbines. By statute they had wind developers on it, the person who that built Shirley Wind on the Wind Siting Counsel, and another wind developer, WE Energies, another utility, Clean Wisconsin, Renew Wisconsin and so on. You end up with a defacto majority on the counsel. And the way the report was generated was the PSC staff created a draft and it was discussed by the counsel. You have people that were leaning pro-wind and the ones he was working with that he called leaning pro-health, trying to protect people. Any time there was a discussion or disagreement about the content of the wind siting counsel report it went to a simple majority vote of the members. So it was an extremely biased product and because it was, the minority members on the counsel produced a minority report. It appeared in the appendix in the main report and it described all the reasons, the dissenting opinion, the protest documents essentially about the whole way this process was conducted and the literature was rejected or not highlighted or errors of omission that ended up producing a report which did not reflect the literature. He submitted that to Ms. Xiong, that was also a non-peer review and was being published accepted by the State of Wisconsin. So these high standards that excluded all these experts that spent their whole life conducting this research and studies and all of their stuff was no good. The Massachusetts report and the Wind Siting Counsel report was okay for Ms. Xiong, he was astounded to hear that. The Massachusetts report wasn't even submitted into the record, only critiques of it were. His opinion, she failed miserably in her research. She also had the opportunity to speak with all of these experts, she was giving the opportunity by Richard James to set up a Skype session between her and multiple experts, and she declined it. She was offered the opportunity to have contact information for a doctor in Australia so she could contact those experts and she declined that. Besides that, if you look at the articles most of them had a corresponding author email address, and he and his wife were able to communicate with 41 authors of them direct, personal contacts on the phone and mostly through email exchanges. They were very gracious. What he was interested in finding out mainly was did Ms. Xiong contact any of them. One she called. There was one other person that reported that they received a voicemail who was Dr. Alec Salt, who was doing some cutting edge research on this issue, he was a Professor and she called him 90 minutes before the meeting where she made her announcement and left a voicemail. He did not see a good faith effort to educate herself more fully regardless of whether or not their documents passed these tests. She's a novice. She hasn't studied this issue. She got on in February or March and began learning about this. She was submitted all this information by these people who had spent their lives and decades studying this. Robinson interjected, reiterating his earlier sentiments with regard to comments to be done in

a respectful manner. Vanden Boogart felt it was inexcusable that all these people be thrown aside and the focus was on junk science. He was very disappointed and had no credibility in the determination.

Delores Green - 5725 W. First Street, Milwaukee

Executive Director of an organization called Renew Environmental Public Health Advocates, she had worked years in the city doing various community projects, she had worked with Dr. Hewett over the past five doing environmental work. She had just recently met Ms. Xiong through Dr. Hewett, she didn't have a long term relationship with her. She came to a meeting two weeks ago, which was her first time coming in which she sat and observed the conversation and the dialog and listened to the various concerns. She sat tonight and listened to the comments and concerns and questioned and she wanted to share her perspective, not to accuse anyone. This was a huge issue and it was really bigger than Xiong or Brown County. It was a national issue. They were dealing with these huge multi-billion dollar corporations that the United States Government was pumping of billion dollars in to build this energy and in spite of all of the studies that they had so far, what they were hearing was, not one doctor was coming forward and saying that the people who were complaining, yes, their symptoms and problems were directly related to the wind turbines. Why were none of these high profile medical professionals, even when a doctor such as Dr. Tibbetts reaches out to them? Refuses any of them, why? Xiong, a Master's Degree in Public Health had only been in this position for one year; it was her understanding that this issue had been going on for five years. If the problem could be fixed, how come it wasn't fixed before Xiong got here? At the meeting that she came to two weeks ago, her heart was bleeding for Ms. Xiong. Xiong walked out of that meeting devastated because of the attack that was on her. When she walked into her office she was ready to give up and Green exclaimed that this was not right, this really wasn't Xiong's problem and didn't know why she was being made the scapegoat here. The issue was that there was a problem. They didn't want to dismiss any of the people who were saying they were having health problems and they were suffering and they believed it was coming from the turbines. They didn't want to dismiss them; it was obvious that it was very real for them. One of the most intelligent things that she heard all night was when Xiong said she needed help. This was a huge problem and it was from the government down. International big business alternative energy worldwide and they had one little county with 200,000 people, 50 saying they had problems and they wanted to sue and they wanted the Public Health Commissioner to stand up and fight this for them and fix this for them and help them. You had to work with her. You can't just bring someone like Xiong in for one year and say fix this, you are responsible.

Barbara Vanden Boogart, 7463 Holly Mor Road, Greenleaf

Vanden Boogart came forward for a second time to speak. She stated, yes, she expected Xiong to do her job and protect the citizens of Brown County; it was within her jurisdiction to do that and within her duty to protect the residents of Brown County. She has had numerous documents, the best documents from experts across the world given to her. It looks like they had been thrown in the waste basket. The studies that she mentioned this evening had all been proven to be highly corrupt in nature; they were easily dispelled by the experts. It was amazing to any of us, sitting in this room, who had worked on this issue for so long to hear her say such things. It was outrageous to the experts themselves. They had contacted them and asked if she had read the material because it was impossible in their minds to believe that. This could be the conclusion of this. Yes, she had been here for nine months but she had the opportunity to read those documents and to study them. She had at her free access without charge. The organization that had worked in this area intensively, not only with the victims of Shirley Wind but with the experts themselves globally and had not availed herself one time to have one meeting with that organization, not once. She did not avail herself to the experts themselves. They were readily available to her. How can you not connect the dots to see that these people in Shirley Wind, in their complaints repeatedly stated that when they leave the area at exposure to the emissions of these turbines in the Shirley Wind Project that their symptoms diminish or altogether leave? Depending on the timeframes of how long they were away, some of those symptoms go away within an hour, some go away within days, some weeks but they go away and when they are exposed again to the turbines they experience them all over again. How can you say there was no relationship? When you go to a doctor and you tell them you a headache, or any other symptoms, does he demand a study be done over you before he actually believes that its related to something you are telling him something you are exposed to. No, he believes you. In the ordinance for Brown County, for a nuisance, for a health hazard, it explains that it had to have a potential that the emission, that the substance that product itself had to have the potential to harm people. This was well beyond potential. These people were suffering tremendously every day and every night, day after day, week after week, month after month and year after year and the people didn't do something before she got to this point for numerous reasons. They were politically afraid and they didn't have all of the evidence that she now had. Studies have now been done that weren't

done then. Yes, she expected her to stand up and do what was right, she expected her to protect these people and not wait for some study across the world or in some other area where they first started out with people having a baseline study to see how they are and how many years was this going to be and then they say after the turbines started up there's this problem. Every single wind project across the world had numerous people who were complaining of the very same symptoms, that was a pattern that should be paid attention to and these people were experiencing the same things and she had a duty and a responsibility to protect them. Not a year from the now, based on paper. Now. There were children being harmed right permanently right now, this minute. And I dare say that not a single person in this room would willingly put their children and their elderly parents in this situation willingly knowing what was known by Chua Xiong at this moment. Robinson interjected and asked that she please stop attacking as he believed she crossed a line. He was open to hear her opinion but this was starting to border on going after the Health Director. He said this in the beginning and was following through on that. Vanden Boogart understood and would dare say that no one in this room exposed their children to those emissions, not willingly and for those individuals that were complaining of those symptoms, the nausea, the ear pain, the vertigo, all of the other symptoms that they were describing, those weren't the only people being harmed. Like what was said by Acker, there were a lot of people with internal injuries that we will not know until they were dead. This was an outrageous conclusion and the committee should be equally outraged as well as everyone who had heard this decision that these people go home and don't sleep again and will be experiencing this for the next days and weeks and months to come when something could be done right now but there's not the guts to do it. It's shameful.

Sarah Cappelle, 508 Grand Avenue, Denmark

Cappelle stated that some have probably already heard her story but she was going to state it again in case someone didn't. She felt it needed a reminder.

Good evening members of the board,

My name is Sarah Cappelle. My husband Darrel and I lived in the Shirley wind project with my family for almost 2 years until we were forced to move from our beloved homestead in April of 2012 because of the continued health issues my son and I endured during this time. Day after day I would have insomnia, migraines, muscle spasms, ear pain, sinus issues, anxiety attacks, joint pain, and chest vibrations. It got to the point that I could barely function on a day to day basis. My youngest son, who was 4 months old at the time the turbines went online, was no longer sleeping through the night, waking up multiple times throughout the night screaming from what we assume was the ear pain he was having. At 6 months of age he had to have ear tubes put in because of the continuous ear infections he was having. He was on antibiotic for months straight. At 2 years old he was not yet talking. When we moved out of our home in April of 2012, it didn't take but 2 week for us to feel better. Our symptoms completely went away. My son began sleeping straight through the night, ear infections went away, and in no time at all he began talking. My symptoms quickly went away as well.

Since we moved in 2012, we have had to move 3 times. We were eventually forced to buy a second home. Since that time we vigorously tried for more than a year to sell our home in Glenmore with fully disclosing the troubles with the turbines, with no luck. Last June, with great regret, we signed our beloved home of 11 years that we bought from my grandparents who lived there for over 50 years, to the bank. No one should ever have to be forced to go through that and I would not wish it on my worst enemy. It was the hardest and most stressful thing that my husband and I ever have had to go through.

My husband and I also continue to work daily in the Shirley Wind area on my family's dairy farm. It is not a job that we can just walk away from. Every day that my family spends on the farm exposes our bodies to the toxins that are being emitted from the turbines.

It has been 5 years since Shirley Wind was erected. For 5 years our community has been suffering. That's an eternity to be sick day after day. That's an eternity to be moved out of your home. That's an eternity to live without relief of any kind. Our community is suffering severely. No matter what the cost, the health department is supposed to protect the people if there is a health issue in the community. If there were a disease raging threw our community like say Ebola, you would be all over it immediately. We let me tell you, we have a HUGE issue that is spreading from household to household faster than you think.

How much longer does our community have to suffer with their symptoms? Just last week I heard of 2 more people whose health is being affected. The longer people are exposed the BIGGER the health issues will get and people may never recover from them. It will alter their health and lives forever and for why? We can't wait any longer for solutions. It's been long enough. We are tired of not being taken seriously. The evidence has been handed to you on a silver platter, take it, read it and help stop the suffering. You have a moral obligation to take action. Get out into the Glenmore community and talk with the people who are suffering with symptoms, spend some time at their homes, experience what they are experiencing.

Marty Adams – 1848 Mill Road, Greenleaf

Adams informed that he lived about 4-5 miles from the wind turbines. He had a brother that had lived next to one of the oldest wind turbine farms down in Wisconsin, along HWY 18, Iowa County. He had been in the Public Health field for 21 years with Brown County, he had listened to thousands and thousands of complaints about different issues, he wasn't saying any of these complaints were not valid with their symptoms. He felt the one thing that the public had not understood was just because someone said it wasn't a problem, doesn't mean it was the cause. And that's something that as environmental professionals and those in the public health field had to follow statutes and guidelines and precedents that had been set many many many times over and are repetitive. For example, they go into a restaurant and they find rodent feces in food, that was very predicable to tell the public that done with studies many times over, there were thousands of doctors that would line up and say this might cause salmonella by you eating the rodent feces. There was no question about that, that evidence was out there, it was backed by everyone. They heard from multiple people tonight that they had no doctors in our community that would support saying that these wind turbines cause these health issues, why? There were 250,000 citizens in Brown County, of which about 20% smoke or about 50,000. Has our Board of Health ever declared smoking a health hazard? Banned that? Do you know the liability that the county was facing by not doing that? There had been mega, ka-billion dollar settlements for tobacco. They had 50,000 people that smoked in the county. They had all of the citizens up until July of 2010 that were exposed to second hand smoke. The County Board did nothing, Board of Health did nothing. There were people within the Health Department that said it should be banned, it went nowhere. They had approximately under 100 people that complained about the wind turbines, he was not disputing their claims but they had no direct link to their health effects and he had over the years many, many, many people call up and say Mr. Adams, I have not slept in a week, for example, I have bed bug in my bed. I'm sorry sir, our office does not come out and destroy or kill bedbugs. We cannot order your landlord to remove them. That's part of the county ordinances that they had to follow. Didn't mean that it wasn't an issue to the individual, doesn't mean that the individual was inaccurate in their statements in saying that they could not sleep, he total understood that. If he was being bit by bugs all night he might feel the same way but the county didn't have the ordinance to support coming out and ordering the building condemned, shut down or closed. Just as they didn't have an ordinance to shut down and close the wind turbines. That was a state issue. And the people if they want to change that, he would suggest that they go to the state because that's where the issue was. The Health Director cannot condemn something based on lack of science and evidence that was clearly visible and was repetitive and can be shown. They do close places down that there were health affects for, those were well documented and stated in the statute and stated in the ordinances. He believed that if the county wanted to get into a multi-million dollar lawsuit and lose it big time, when there were no bases and no doctors in the community, he felt it was a great way to lose millions of dollars in a lawsuit. It would be the last thing he would do. A couple of the comments that he heard from individuals tonight concerned him. When talking about conflict of interest, he would hope that all of the citizens were considered for positions that were going to be possibly considered for the board of health and not specific individuals. As a taxpayer, he wanted to be represented by an open mind that was willing to look at the whole picture and not specific individuals on one side or the other side. They had to look at events throughout the county related to health in the same way. Recently their office was contacted, for example, to shut down Morrison Manor due to the health effects. How you shut something down, condemn it as was requested by county residences, supervisors and others when no one was living in it. Their ordinance says; shut it down for those that are living in it. There was no one living in it. If they would have done that, every empty building that someone didn't like, they would raid orders to shut down. Every complaint that they got, their office got multiple complaints on mold every year. If they were going to be condemning one issue in the county for health effects that they receive some complaints on from some residents he could you that they were going to set a dangerous precedent that was going to have to be done on multiple items. That's not a route they want to go and it was lacking scientific evidence to support it.

Jim Mueller – N8710 Pine Road, St. Cloud, Wisconsin/Fond du Lac County

Mueller informed that he lived in Fond Du Lac County, they had been in wind turbines for seven years. What they hear about being the same thing in every single wind turbine projects, it was correct. When you use the examples that were just used, they were totally off the wall. First of all, smoking was a choice. If you want to smoke and you want to kill yourself, that was up to you. They lived in the wind turbines; they expected their whole life in their home, everything they had was in that home. They didn't choose the wind turbines by choice, they were dumped on them. Considering that, he could understand the difference between the Health Board fighting for someone smoking or not smoking or fighting for people who were put in a position they couldn't help. When you looked at the mice in a restaurant that had nothing to do when you look at the power of the wind turbine industry, the promoters of it and what they were fighting. It was a whole different ballgame. Was there evidence; if you went through the documentations, there was evidence. To just be neglected and let them keep suffering was not the right thing to do. It had been seven years of hell for them and they had done their best to try and keep going through this. They were looking for help from their local people. Everyone says go to the state, it wasn't just the state; the state wasn't getting funded like Fond du Lac County was. Fond du Lac County was getting about \$700,000 a year to turn their heads and not look at their health. It was almost \$5 million over seven years and the \$5 million they will not yet issue any money for a study. They needed to get the local people involved. The people in counties that don't have turbines don't care. The people in Madison that don't have turbines don't care. If they can't get their own counties to fund the money to do the studies that were making the money, why the hell would anyone else care when they were not getting funding for it. They did need to get the local people, they did need to get Brown County together with Fond du Lac County and they did need to take care of our public and our people. They had been in their house for 37 years and have not had a problem, they had not even attended a County Board or Town Board meeting until the turbines went up and they had health problems. They had now been to Madison four or five times. They had been at the county level, the town level and had been at every level. They needed to get people involved.

Sandra Johnson – 1893 Wayside Road, Greenleaf

Johnson informed that she was a retired green bay science teacher. Her husband taught high school for 31 years, she still had her home and the only reason she had her home was because the citizens in three southern towns organized very quickly when they heard that Invenergy Energy wanted to site 100 wind turbines in those three towns. It was hush hush for a long time. The evening she heard about it she went on her laptop. The next day she went on her laptop. All the information about things going wrong and they formed a citizens group the BCCRWE. Everyone work very hard, they had about 150 people working on this. They put up three billboards, they put out 100 lawn signs, they testified at hearings, they sent emails, they called their representatives and one day she got an email. The postman had been going to all the home of the people who signed contracts with Invenergy and Invenergy was pulling out and cancelling contracts, they were not sure why but they suspect it was because people got involved and did their homework. Something that kept coming up was almost a statement like the noise studies don't matter. The thing was these giant industrial wind turbines don't just element noise, of course audible and inaudible noise, infrasound. They produce EMF, electromagnetic fields, which was not a good thing. You don't want your home near an electromagnetic field. If you stand near a substation there was an electromagnetic field. It was very easy for someone out of state or in a different part of Wisconsin to say it was a growing thing, it was renewable energy, it was clean, it was free. There was nothing free about it. It was billions of dollars going into an industry that had a very inefficient technology in terms of electrical production. She had talked to Bill Acker and he said, at best it was 30% efficiency and they call it capacity factor. Your new furnace should have a capacity factor of 95%. SO what they were doing was sinking all these billions of dollars into a technology that was not efficient, not doing what they promised it would do and on top of all of this, they had people who lived near these things that were sick. Some had abandoned their homes. Four homes in Kewaunee County, in that first wind project, well before Shirley Wind were owned and operated by WPS. Four families were bought out. Two of the houses were bulldozed and she wasn't sure if the other houses were vacant or rented out? She wanted to correct something she said at last week's Board of Health meeting. She made the comment about 580 new wind turbines coming to Wisconsin. That wasn't quite accurate. The EPA came up with an announcement within the last three weeks, they were looking at Wisconsin and they thought that it was a good idea to put up 580 more wind turbines. That's like seven more Fond du Lac projects dumped on different counties in this state. This was the plan. They wanted to do this. 80 of them would be along the lakeshore by Lake Michigan. Ron Hoyer was here, he did a statement. They had a foreign country company, a Canadian owned company, Capital Power, they took over control of the Tisch Mills proposed wind project by buying Element Power US last winter. They bought out those contracts and Element Power wanted to get out of town. 80 500' wind turbines in



Lake Michigan from Algoma to Two Rivers. The problems in Shirley Wind were no longer a secret, the last thing, she called them the black suites, and they were the team of attorneys for Duke. They came to just about every meeting, they sit in a row quietly and listen and then when it's over, at the December 15<sup>th</sup> meeting one guy got up and smiled. She questioned what was great about this. So the problem wasn't a secret anymore because this was bad PR for them, they know if those turbines are shut down 100% for a period of time, and the same noise experts go in with the expensive and correct technology to measure for infrasound and low frequency noise, they know that they got a big problem because they keep claiming that if it's there it was coming from somewhere else. We know that it isn't, they know it isn't. So Xiong was correct, she had a horrendous problem here. She had good credentials, this was a tough thing. But those turbines had to be shut down. Duke claimed it was a good corporate neighbor, they claim there was no proof and yet they hadn't proven to us that they were safe. Here's your chance, shut them down, let objective acousticians go in and reassess those homes and see what turns up and what doesn't turn up. She wanted to know what the magic number was. How many more people had to get sick? They had 85 people on record, 50 with the affidavits. What did they have to hit before it was bad, 100? 200? 300? They had been testing homes five miles away, people who thought they were safe and there were measurements of IFLN in those homes. This was going to be a lot more people. Now imagine Fond du Lac. 88 wind turbines, make a radius of five miles from each turbine and let's look at the population within that footprint. There were people there that don't know that they were sick and they don't understand why they can't sleep. There were people that approached these people in this room from Fond du Lac saying, I am sick, I signed a contract, I'm hosting a turbine, I have a gag clause in that contract that I cannot legally tell the officials. They are scared. The lady from Milwaukee made a lot of good points. There were billions of dollars in this. Billions. This was her feeling on it, her opinion that these people were being poisoned everyday by noise pollution and electrical pollution. Duke denied stray voltage, they came in and had two guys come in, she hadn't heard good things about that. But stray voltage was tested in homes and was very high, unsafe levels years ago. As for Clean Wisconsin she sat in the hearing room in the PSC building because of the Highland wind testimony, because they want to put up 44 500' turbines and they know what is going to happen. They will flip it lightly, flip it within a year, take the money and leave. They were on the third owner of Shirley Wind, why is that? Why is after a period of time they decide to pack up and leave and leave the problems behind? She was in that hearing room and that attorney for Clean Wisconsin quietly got up to the front near the judge, she had redacted the Shirley Wind test report without the permission of the four. She made the mistake in sending them an email, trying to convince them to change the report. She said to the judge very quietly, the room was filled, I am asking you to delete my email to get it out of the record in terms of my testimony or any record of that and he looked at her and said, no. She had a problem, because she didn't think that was legal to do that.

Two years ago she called Dr. Tibbets and said there had to be something they could do to measure how those people were doing beyond an affidavit that they weren't feeling well. Or their milk productions were run down or they were losing livestock and didn't know why. He said, I don't know what we can do, we don't have any money. She called Carmen Krogh, a pharmacist in Ontario Canada, she had published different papers on this topic, and she had worked as an activist to warn farmers in Canada not to sign contracts. She questioned what they could do to better assess or give a record of what happened. She suggested a sleep study because sleep studies by the World Health Organization now was a valid self-reporting science. They had five counties participate. In Manitowoc they only had one family, kids and adults, but they were about three miles east of Shirley Wind. They had about 15 families in Brown County that participated. All of these were given to Xiong. She would love to be able to ask her, what was the common threat in the sleep journal in Manitowoc, Brown, Fond du Lac, and Columbia County? She didn't think she could tell her.

The common threat was, everyone had their sleep disrupted. They had a lady that was in this room, she did a sleep journal. 57-years old, female, from St. Cloud, Town of Marshfield. If you look at any page, this study ran from December and January and were collected in the first week of February so for 8 weeks they had sleep journals. The common threat like she said, disruption of sleep. Date: December 7<sup>th</sup>, 9pm, living room, droning noise, can't hear it over TV set. Later that day, droning noise so loud in the bedroom and bathroom, just walked back out of the room, can't get any sleep, going on fumes again, can't hardly take it. I'm so exhausted, blades facing north, a little west, trying to get some sleep. Droning, vibrating, humming, must have dozed off for a few minutes, got up at 5:27. December 8<sup>th</sup>, Sunday, Bedroom, trying to go to bed but left the bedroom, droning, vibrating, humming noises so bad. Went to recliner, trying to go back to bed, same droning noise, don't know if I ever really slept. The reason she saw this pattern was because she laid them all out and then she redacted them to make sure their name and address was off of it and they were just numbered. This was evidence of sleep disruption and that's one of the biggest complaints,



certainly headaches were up there. So what did the world health organization think about disrupted sleep? "It should be noted that low frequency noise for example, can disturb residents sleep even at low sound pressure levels, 1999." "It should be noted that large proportion of low frequency components in the noise may increase annoyance considerably, 1995." "Health affects due to low frequency components in noise were estimated to be more severe than for community noises in general, 1996." World Health Organization - Where noise is continuous the equivalent sound pressure levels should not exceed 30dpa. Turbines can disturb residents sleep even at low sound pressure levels, 1999. The engineers of all of these companies know about this information. She didn't know how they could do it to people, she didn't understand. Flynt, Michigan, they had a problem, they had the EPA, local officials, the governor, who knew about the poisoning, could this ever really happen? She had nothing to gain by being here, she'd rather be home, and she'd rather have her life back too. The company that produced the electricity was liable for the byproducts, stray voltage, EMFs, ILFN, audible noise. This was trespassing on people's lands. Referring to May 24, 2012, pg. 9, footnote 10, this was the Supreme Court: Wisconsin, July 28, 2005 – Upholding award of \$750,000 in economic damages for stray voltages on a dairy farm, plus an award of \$1 million for annoyance, inconvenience and loss of use and enjoyment of his property. Wisconsin Supreme Court was of the standard. They were on a list of about 10 states. The 9 other states had looked to them and they too had been calling electricity a pride. What she felt that meant was that it was easier to win a case and to get a pretty good settlement. She was hoping it didn't come to that. The Supreme Court said, annoyance, disturbance, that all mattered. She was so proud of Brown County for listening and proud to be a resident.

Joan Lagerman – W2178 CTY Q, Malone, WI

Lagerman wanted to comment on what Ms. Johnson said, the next day she went on the internet and there it was. Eight years ago there wasn't anything on the internet. She was just getting woke up in the middle of the night questioning this really couldn't be what was going on, there must be something wrong with them. No, it was just what life was. There was a group of them up here tonight and she didn't know any of them and they met at County Board meetings like this and she must also commend the committee for being open minded and thinking about the people, why would they be there wasting their time? She found last night that the World Health Organization had an amendment to the study that Johnson was talking about and she'd like to send a link to the committee.

Michelle Buresh – 2136 Country Lane, De Pere, WI

Buresh wanted to address the question some people were raising, why medical doctors aren't coming forward. This was her experience so far with it. In 2013, was when she started to suspect that what symptoms she was having could be related to the infrasound produced by turbines? She had her home tested three separate occasions. Rick James himself was there on one of those occasions. The findings were the frequencies in her home were consistent with the Shirley Wind study done. Every time she went to the doctor, her medical provider was Prevea, before she realized they did not receive that letter from the board of Health she would ask them about it and no one knew anything. She has seen a neurologist, multiple general practitioners, an ENT all within Prevea. She saw a neurologist outside of Prevea. Each and every time when she asked the doctors, what do you know about infrasound, could there be a link between what she was experiencing and infrasound and they don't know what infrasound is. The only medical doctor that she found that even knew what it was was an OBGYN and his advice to her was to keep documenting her symptoms. Her ENT who ordered an MRI on her, sinus CT scans, another test where they placed probes on her head and she followed lights, it was determined she had a weakness in her ear. After physical therapy for that, he gave her a clean bill of health and the ENT was not finding anything wrong with her ears even though she continued to have ear pressure pain, those symptoms. He refused to take any documents she brought along because he didn't have time to read them in regard to any wind turbine possibility. One of the general practitioners told her husband they had a solution for us, move, but they would not put that in writing. She went to the Urgent Care a lot so she saw multiple general practitioners and each time she mentioned infrasound and could there be a link and she had them tell her when she mentioned that the Board of Health was making a ruling on it, it was being discussed in Brown County, they say good luck with that. It didn't sound like anyone wanted to take an interest and step up and research it more and find out what was going on? In her last visit, this past December she saw a Physician Assistant who said she saw her ear issues a lot with people who fly a lot due to the pressure changes. She felt maybe this was a link because there were pressure changes with the infrasound. Buresh questioned if there could be a link and they didn't know because they didn't know the details in the differences in flying and wind turbines. So she'd been asking doctors but what she was finding was that they didn't know what infrasound was, they didn't understand it and they didn't want to take an active role in finding out about it.

Susan Ashley – 309 Prospect Avenue, Denmark, WI

What compelled Ashley to be here, about 5 years ago Shirley Wind began erecting 8 nearly 500' tall turbines in Glenmore, Wisconsin. Since that time people living, working and visiting the area had noticed negative affects on their health and wellbeing it had been documented. Her family lived a little over a mile from the closest turbine. After the turbines became operational they had experienced symptoms that they either rarely or never experienced before by them. Symptoms such as ear pressure and pain, intense headaches, sleeplessness, anxiety to mention a few, which was so unusual for them. When talking about how their health was before the turbines, they had great health, excellent health. It took a while for them to realize that these ill effects were associated with the turbines. But when they went away from the area they felt better, when they returned to their home their adverse symptoms also returned. At the board of Health meeting and at this meeting they had this issue compared to smoking. As you know smoking was a choice. Being exposed to the ill effects they were facing was not a choice. But in reality they did have a choice and the only choice that they had was to continually be exposed or to move away. The choice they made was to move away. They just built this home, it was nine years old. They had to leave. They chose to move from a 2,400 sq.ft. home to a 1,000 sq.ft. home with four children. They chose to leave from over 2.5 acres of land to .17 acre. Right now they were paying two mortgages, one house they can't even live in. A request was sent to Duke Energy, owners of Shirley Wind. Excerpts state: If you, Duke Energy, are confident that your operations were not responsible for our hardships or symptoms, we would like a written statement from your company Medical Director or other medical professionals [inaudible] with that conclusion. If they decided to rent or sell their valued home, they would like to have their signed written statement to give to potential renters or buyers that they are not putting themselves into harm's way due to living in the vicinity of your wind farm. This request was made a few times and Duke Energy was given the opportunity to give a definitive conclusion that their windfarm was safe for the people living in the vicinity of this operation. They were still waiting for the statement. Duke Energy had not given it to them. She was wondering if Brown County could give them that statement if they choose to sell their home. Can they give them a statement that that family will be safe? So that if they choose to sell their home that they were not responsible for the health of the people that move into that home. They don't enjoy having to pay two mortgages but they don't want to give that house to another family.

Elizabeth Ebertz – N9192 Pine Road, St. Cloud, WI

Ebertz stated there was a suggestion about turning off the turbines, in Blue Sky Green Field Wind Farms; the turbines were turned off for three weeks because they had to do some testing. And after a week of them being off, she got rid of all of her symptoms. She couldn't even walk up and down her steps anymore; she crawled up and down them. After a week she went up and down her steps as if there was nothing wrong. She truly thought that if they could turn the turbines off and just kept a diary every day of how it affected you differently, it would be a huge success in proving that there was something causing their problems. That's what she wanted to say, because it really was a big difference. She went over by her son, which was a 20 minute drive from her place and she felt so relieved and when she got back home reality set in. At least she has some place to go where she could at least have some comfort. She hoped that's what the county could do. She knew it was like pulling teeth.

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to return to regular order of business. Vote taken. MOTION CARRIED UNANIMOUSLY**

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to receive and place on file. Vote taken. MOTION CARRIED UNANIMOUSLY**

Human Services Department

**6. Executive Director's Report.**

Human Services Director Erik Pritzl addressed the Committee. He outlined some of the report that was contained in the agenda packet. He said that they are still working on the 2015 year-end figures. He assured the Committee that they will get the figures soon. Robinson asked that when the time comes to explain the budget deficit, he would like it described as simply as possible. Pritzl stated that he will do his best as he does not want people to be confused.

Pritzl continued by discussing the mental health initiatives. He noted that work is commencing on all of the areas of the initiative. Pritzl said that the first part of the initiative is the mobile crisis expansion and he will talk about that in a little bit. There are work groups formed on the other parts of the initiative. Behavioral Health Manager Ian Agar is

heading up a group on the detox portion and he is working with the Sheriff's Department, Green Bay Police, and a community provider. They are putting together criteria and developing a plan for detox using the resources that the County Board awarded. This group has met four times already. Robinson noted that he had attended a meeting earlier in the day and this came up. He asked if one of the options is using part of the CTC and Pritzl noted that that was not one of the plans. He continued that there are only two facilities in Brown County that are approved for this. One is Bellin and the other is the CTC, but the CTC cannot be used as a primary need so that rules it out for the population they are looking at. Right now they are looking at Bellin to provide the services that will be needed. The transitional residential treatment may be possible at the CTC because that is a CBRF so it would be a program change application to get the service in place. That would be for the post-detox piece which is important because if only detox is done and nothing after it, it does not really address the needs.

Pritzl continued that Hospital Administrator Luke Schubert is working on the transitional living portion and Schubert's group has had a meeting on this. Schadewald noted that the County Board approved the money and he believes that the Board needs to have updates and reviews and keep looking at things to make sure that things are moving along; he did not ask for this update because he thinks anything is being done wrong or not being done. The day report center is the last part of the initiative and DA Dave Lasee has taken the lead on this portion. Lasee has already had a meeting on this and the group he is working with is looking at RFPs from other counties to help with the drafting of an RFP for Brown County. The next meeting of the Mental Health Ad Hoc Committee will be held on February 19. Schadewald asked how the success or outcomes of these initiatives will be measured. Pritzl responded that objectives will be set from the beginning to help with the measurables.

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to receive and place on file. Vote taken.**  
**MOTION CARRIED UNANIMOUSLY**

**7. Resolution re: Expanding Mobile Crisis Services.**

Evans noted that he had received a call from Chad Weininger asking why he was not at the press conference regarding the mobile crisis services. He noted that he was not invited, nor was Supervisor Zima and Zima is quite upset about this. Evans noted that they found this so interesting because the Executive was trying to find ways to veto this at the County Board, and then found out that he did not have the veto override and now he certainly is enjoying some of the credit for this in the media and Evans said this was disheartening. Evans also said that Zima felt Pritzl would have been in charge of inviting people to the press conference. Pritzl said his understanding was that the press conference was initiated by the County Executive's Office and that invitations were extended to County Board members because the bottom of the notice he received said that County Board Supervisors are invited and a quorum could be present. That is the extent of Pritzl's understanding on this and Evans stated that neither he nor Zima are on the County Executive's list of admired Supervisors. Pritzl noted that some of the people that were speaking in support of this at the press conference are in attendance at this meeting and Pritzl wanted to be sure that it was known that all of the people at the press conference commented that they would not be at the point they are at without the support of the elected officials which includes the County Board. Evans appreciated that and thanked those in attendance and indicated that he appreciated their advocacy and their work and he felt that they were heading in the right direction. Robinson also thanked those in attendance for the work they have done and he also provided encouragement to continue.

Supervisor Jamir thanked Pritzl for all he does and asked that as Pritzl comes up with results and methodologies, that he bring that forward to allow the Board to either question how the money could be better spent, or increase the funding. He said that at the budget meeting a lot of questions were answered with "I don't know". Jamir said he supports this and wants Pritzl to keep doing what he is doing and help the Supervisors to justify to their districts why they voted the way they did. He concluded by saying that he respects what Pritzl is doing and he asked that he also respect the Supervisors.

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

**8. Resolution re: Authorizing the Initiation of the Soar Program in Brown County Using the Community Development Block Grant.**

Evans stated that he will not support this. He said that he had recently read an article on this and was concerned that this may be just another way to send people for SSI.

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to approve. Vote taken. Nay: 1 (Evans).  
MOTION CARRIED 2 to 1.**

**9. Budget Adjustment Request (15-89): Any increase in expenses with an offsetting increase in revenue.**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

**9a. Approval of Beacon Center Lease.**

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

**10. Financial Report for Community Treatment and Community Programs.**

Robinson stated that he sees two issues with this. One is that some invoices came in late so that skews things somewhat. Finance Manager Eric Johnson responded that this is the standard process that has been in place for a number of years and Pritzl added that this is not because the contractors did not invoice properly or anything like that, but this is the process that has been in place for years. Robinson asked if this could be changed in the future and Pritzl said that what happens is when looking at revenues and expenses, the revenues are up to date, but the expenses are going to be lagging because of the invoicing. Robinson said that he is not saying anyone is doing anything wrong, but the report makes it look like this happened in November, but did not happen in previous months, so if contracts are on a regular billing cycle why would this not happen in previous months? Johnson stated that it has always happened. He said there has been a one month lag throughout the year on certain contracts. Robinson asked if there would be a way to adjust that in the future and Johnson responded that they have plans for next year to make estimates on a monthly basis. He continued that accrual accounting is used at the end of the year, but for claiming purposes it has not been used on a monthly basis but they will be working towards making monthly estimates and monthly accruals so that the financial statements the Committee sees are truly reflective of true expenses through the end of the month.

Robinson stated that the second issue is that a number of programs have reached the maximum contract amount and no further revenue will be coming. Johnson stated that because you want to claim as soon as possible against the funds that are available, the revenue has been recognized as claimed, but there is a maximum on a number of contracts so those contracts that were at maximum as of the end of November will not bring in any additional revenue against the expense. This affects the revenues so revenues for December will be lower than normal and expenses will be significantly more. Johnson continued that the standard method of accounting has been used for a number of years, but he has had conversations with Dave Ehlinger and they have decided on a plan to go forward. Robinson said that the way he took all of this is that it does not affect the bottom line at the end of the year, but it affects how it looks at this point. Pritzl stated that by the changes that Johnson is proposing and the work that has been done with the Finance Director, the Department will have more accurate information earlier so they can start making decisions and corrections. The concept of running out of revenue from the State is not unique to Brown County and it happens everywhere. In many service areas, the State funding is not 100%. Sometimes it can be 40 – 50% and further, counties vary in the way they handle this and manage it. What is being proposed is to recognize the revenues in equal parts and there is an accounting for this. Johnson stated that they will recognize 1/12 each month no matter what actually is claimed. Robinson asked if the funds are typically received at the beginning of the year or if they come from the State throughout the year. Johnson responded that the funds are available from the State as Brown County claims against them. He said that they will continue to claim as quickly as they can and put the funds in a deferred revenue account and will only recognize 1/12 each month. Weininger added that moving forward they will use the accrual for the revenue and expenses and the new group that is coming in will hold monthly meetings so they can look to see where they are at to better manage the resources moving forward. This is much more fiscally sound and projected issues can be dealt with so there are not very large discrepancies, unless they are out of the County's control such as high cost clients. Pritzl stated that he cannot discuss specifics but there are some placements for people with very significant, complex needs.

Robinson recalled that there was an account within the fund balance for high cost clients. Pritzl stated that there was a fund balance that built up over time. Weininger added that what happens is the fund balance would cover the shortfalls if there were not high cost claims. Last year there were a number of high cost claims that took a large portion and, in addition, the fund balance was used to pay down the Family Care stepdown. Weininger continued that what will happen is the fund balance will be eaten up to a point where if CTC or CP does not start having a positive variance, a transition to the general fund will occur and the general fund will be eaten down which will be problematic. Weininger continued that this goes back to what was talked about during the budget time of what the census is and if the census is not increased to a certain level there will have to be discussions to decide what the next steps are. Sooner or later this has to be figured out or the general fund balance will be taken down at a fast rate which will not be very healthy for the County.

Johnson added that they are also looking at bad debt. They are pursuing all accounts that they believe are collectible and they are working to determine what is truly collectible. What was happening in the past was they were just being reduced value-wise a little bit each month for 12 months and then after 12 months they were deemed not collectible. They have changed the method to be a more gradual reduction over the 12 month period but not write them off after 12 months if they feel that the debts may be collectible.

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to receive and place on file. Vote taken.**  
**MOTION CARRIED UNANIMOUSLY**

11. **Statistical Reports.**
- a. **CTC Staff – Double Shifts Worked.**
  - b. **Monthly CTC Data – Bay Haven Crisis Diversion/Nicolet Psychiatric Hospital.**
  - c. **Monthly Inpatient Data – Bellin Psychiatric Center.**
  - d. **Child Protection – Child Abuse/Neglect Report.**
  - e. **Monthly Contract Update.**

Robinson referenced the list of double shifts worked and asked what information the Committee was supposed to glean from this. Pritzl stated that someone had asked for that to be provided to the Committee, but he did not know why. Robinson also asked about what the involuntary and voluntary child/adolescent admissions were supposed to tell since it is just one line. Evans stated that they have asked what was done in the previous month and Robinson noted that he would like to at least see the trends. Pritzl agreed with Robinson and said that they could easily make the report month by month or something like that to look at the previous figures. Finally, under the child abuse and neglect report, there is a triple asterisk in December and Robinson has no idea what it means. Robinson stated that in looking at the different months, there is an interesting difference.

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to suspend the rules to take Items 11a-e. Vote taken. MOTION CARRIED UNANIMOUSLY**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to receive and place on file Items 11a-e. Vote taken. MOTION CARRIED UNANIMOUSLY**

12. **Request for New Non-Continuous Vendor.**

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

13. **Request for New Vendor Contract.**

**Motion made by Supervisor Robinson, seconded by Supervisor Hoyer to approve. Vote taken. MOTION CARRIED UNANIMOUSLY**

14. **Audit of bills.**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to pay the bills. Vote taken. MOTION CARRIED UNANIMOUSLY**

15. **Adjourn.**

**Motion made by Supervisor Hoyer, seconded by Supervisor Robinson to adjourn at 9:10 pm. Vote taken. MOTION CARRIED UNANIMOUSLY**

Respectfully submitted,

Alicia A. Loehlein  
Recording Secretary

**APPLICATION FOR LICENSE - BROWN COUNTY HEALTH DEPARTMENT**

In accordance with Chapter 37 of the Brown County Code of Ordinances, I the undersigned do hereby apply to the Board of Health of Brown County for a license for the year ending June 30, 2016

I hereby certify that I am familiar with the laws, ordinances, and regulations pertaining to the conditions of said establishment in the County of Brown, and I hereby agree, if granted said license, to obey all provisions of said laws, ordinances and regulations.

**PLEASE PRINT CLEARLY THE FOLLOWING INFORMATION:**

ESTABLISHMENT NAME \_\_\_\_\_ PHONE \_\_\_\_\_

ESTABLISHMENT ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ ZIP CODE \_\_\_\_\_

LEGAL LICENSEE \_\_\_\_\_ E-MAIL \_\_\_\_\_

(List the name of the Individual, Partnership, or Corporation)

LICENSEE ADDRESS \_\_\_\_\_

PRINTED NAME OF APPLICANT: \_\_\_\_\_ SIGNATURE OF APPLICANT: \_\_\_\_\_

MAIL LICENSE TO: \_\_\_\_\_

(Please indicate where correspondence should be mailed to – if NOT indicated it will be mailed to the establishment)

**THIS APPLICATION MUST BE SIGNED TO OBTAIN A LICENSE – Please Refer To Back of Application For Mailing Instructions.**

**01 Pre-inspection**

**NEW** = 40% of License Total (Total Fees X .40) \$ \_\_\_\_\_

**EXISTING** = 30% of License Total (Total Fees X .30) \$ \_\_\_\_\_

**PERMANENT RESTAURANT AND MOBILE BASE**

02 Prepackaged food only \$157

**Food Prep on Site – Risk Categories**

05A	*Simple	< \$50,000	Gross sales	\$484
05B	*Simple	\$50,000-\$200,000	Gross sales	\$548
05C	*Simple	>\$200,000	Gross sales	\$617
06A	*Moderate	< \$100,000	Gross sales	\$662
06B	*Moderate	\$100,000-\$400,000	Gross sales	\$722
06C	*Moderate	> \$400,000	Gross sales	\$781
07A	*Complex	< \$150,000	Gross sales	\$830
07B	*Complex	\$150,000-\$600,000	Gross sales	\$891
07C	*Complex	> \$600,000	Gross sales	\$947
08A	*Mobile Unit (Prep)		n/c	
08B	*Mobile Unit (Prep)		\$365	
09A	Mobile Unit (Pre-pack)		n/c	
09B	Mobile Unit (Pre-pack)		\$157	
10	Satellite unit		\$103	
13	<b>Tavern</b>		<b>\$145</b>	
13A	<b>Additional Tavern Area</b>		<b>\$ 37</b>	
14	Soft drink stand		\$145	
15	Frozen confection		\$145	

**Retail Food – Risk Categories**

16	***Ag Code 55		\$157	
17	***Ag Code 44		\$484	
	A. Limited Processing		\$193	
18	***Ag Code 33		\$534	
19	***Ag Code 22			
	A. < \$250,000 Gross sales		\$617	
	B. \$250,000-\$600,000 Gross sales		\$781	
	C. \$600,000 - \$1,000,000 Gross sales		\$947	
20	***Ag Code 11			
	> \$1,000,000 Gross sales		\$1439	
21A	***Ag Mobile Unit (Prep)		n/c	
21B	***Ag Mobile Unit (Prep)		\$365	
22A	***Ag Mobile Unit (Pre-pack)		n/c	
22B	***Ag Mobile Unit (Pre-pack)		\$157	

**Specials**

23	Special Advisory Inspection		\$181	
24	Bed & Breakfast (2 year license)		\$350	
25	Tourist Rooming House		\$145	

**Hotel/Motel**

26	5-30 rooms	\$387
27	31-99 rooms	\$556
28A	100 - 199 rooms	\$691
28B	200 + rooms	\$796

**Swimming Pools**

29	Outdoors pool	\$245
29A	Additional pool (outdoor)	\$ 79
30	Indoors pool	\$574
30A	Additional pool (indoor)	\$181
31	Pool Slide OR Water Slide	\$127

**Manufactured Homes Community**

33	1-25 sites	\$450
34	26-50 sites	\$495
35	51-100 sites	\$569
36A	101-175 sites	\$631
36B	176 + sites	\$682

**Campgrounds**

37	1-25 sites	\$241
38	26-50 sites	\$293
39	51-100 sites	\$339
40A	101-199 sites	\$387
40B	200 + sites	\$435
41	Recreational/educational camp	\$241

**Tattoo/Body Piercing**

42	Tattoo	\$241
43	Body piercing	\$241
44	Combined tattoo & body piercing	\$365

**Schools**

48	Schools – limited service	\$227
49	Schools – prep on site	\$520

**Temporary Events**

50	**Restaurant	\$185
51	**Food Stand	\$185
52	Temporary tattoo or body piercing booth	\$103
53	Special Event Campground 1-25 sites	\$175
54	Special Event Campground 26-50 sites	\$230
55	Special Event Campground 51-100 sites	\$285
56	Special Event Campground 101-199 sites	\$330
57	Special Event Campground 200+ sites	\$380

**Fees**

Re-inspection Fee (See Reverse)	
Other Permit Inspection Fee	\$ 45
Closure/Reopen Fee	\$107
Operating Without A Permit	\$127

**THIS LICENSE IS NOT TRANSFERABLE**

**You MUST have a valid license BEFORE operating. All licenses expire on June 30th annually.**

TOTAL DUE:	STAFF INITIALS:	REPLACING:
------------	-----------------	------------

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

FOR OFFICE USE ONLY:: AS400 ID# \_\_\_\_\_ Amount \_\_\_\_\_ Check # \_\_\_\_\_

4

HEALTH DEPARTMENT

# Brown County

610 S. BROADWAY STREET  
P.O. BOX 23600  
GREEN BAY, WI 54305-3600

CHUA XIONG, R.N., MS

PHONE (920) 448-6400 FAX (920) 448-6479 WEB: [www.co.brown.wi.us](http://www.co.brown.wi.us)

DIRECTOR

Brown County  
Tavern Inspections/Violations Data  
07.01.2014-06.30.2015

**07.01.2014-06.30.2015**

	<u>Number</u>	<u>Fiscal Impact</u>
Taverns Closed/Changed Operator	20	2,900.00
Additional Taverns Closed/Changed Operator	0	0
Active Taverns	317	45,965.00
Active Additional Taverns	52	1,924.00
<b>Total:</b>	<b>389</b>	<b>\$50,789.00</b>
Inspections Performed	354	
Violations Noted	1,301	



@BrownCountyHealthDept





# Scientific Evidence-Based Research: The Basis of Public Health Decision-Making

Chua Lo Xiong, MS, RN  
Health Officer  
Brown County Health Department

## My Credentials

- I hold a Masters of Science Degree specializing in Public Health Nursing from University of Wisconsin-Milwaukee
- Upon graduation in 2003, I accepted the position of PHN in Communicable Disease and Maternal Child Health
- In 2005, I became the Manager of Public Health Nursing (Communicable Disease/Adult Health)
- In Feb 2015, I was appointed the Health Officer for Brown County

## Epidemiology and Public Health

- Epidemiology forms the scientific basis for public health
- Epidemiology is defined as "... the study of the distribution and determinants of health-related states or events in specified populations and the application of this study to control health problems"

Gordis, 2015, p. 2

## Epidemiology and Public Health

- What is an Epidemiologist?
  - A person with advanced degree(s) who studies the health of populations
  - Educational background—varies  
Degrees such as health professions, mathematics, chemistry, biology, engineering
  - Develop content expertise in their graduate education
  - Highly educated (PhD, ScD) in scientific research methods and biostatistics

## Public Health Decision-Making

- Epidemiological Studies are individual studies
  - Must have an unbiased sample, or the whole population
  - Must measure exposure
  - Must link the exposure to measureable health outcome(s)

## Public Health Decision-Making

- An Integrative Review is a study of studies
  - It involves a detailed, strategic plan to collect information prior to critiquing the individual studies.
    - Identifies a target population
    - Clearly states inclusion and exclusion criteria
    - Articulates a strategic plan for collecting, reviewing, and critiquing studies
    - Assesses the validity and quality of each study that is reviewed

## Indicators of Credible Scientific Evidence

- Journals/other forms of publication
  - Credibility of the journal (impact factor)
  - Peer-review process
- Authors
  - Credentials
  - Publications
  - Institutional Affiliation
- Research Methods
  - Scientific Rigor

## Journals

- Impact Factor is a measure of its credibility, reflecting the prestige of the journal, its editor and publisher
  - Impact Factor (rating given to journals)
    - New England Journal of Medicine, 2014, **55.87**
    - Environmental Health Perspectives, current, **7.98**

## Journals

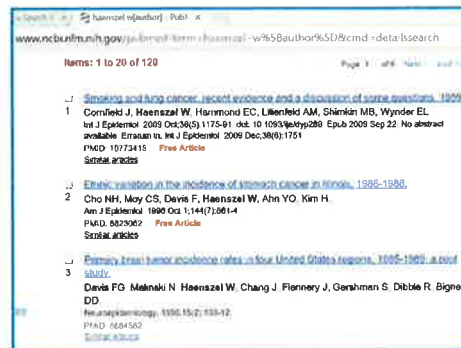
- Peer Review Process
  - Articles are written by *authors that should be* experts in the field and are reviewed by several other experts in the field before the article is published
    - Experts who review articles are carefully selected based on their scientific expertise, research methods, and *who are without bias* toward the authors of the research article
    - Peer reviewers should be free of real or perceived conflicts of interest and independent of the agency or research group under review

## Authors' Credentials

- PhD/ScD (highest research degree)
- MD/DO/DrPH (professional degrees)
- MS (science degree)
- MPH (or other professional degree)
- BA/BS (art/science degree)
- Last author (Senior)-most important, major professor, more research in the specific field, a lot more experienced

## Authors'

- Publication Records
- Credibility of their Academic Institutions (ex. Harvard, Yale, Princeton)



## Research Methods

- Scientific Rigor
  - Focused, and use an objective design that can be replicated
  - Use stringent, unbiased protocols and appropriate data analysis
  - Results are fully reported and
  - Conclusions are consistent with results

## A Research Report

- Literature Review
- Methods
- Results
- Discussion
- Conclusion

## Indicators of Credible Scientific Evidence

- These indicators that I just reviewed were applied in my decision-making process, along with the criteria for causation



## 8 Criteria For Determining Causation

1. Temporality—the exposure must precede the disease or outcome
2. Strength of Association—measured by the odds ratio, relative risk, or rate ratio, also reflects the study design
3. Dose-response relationship—may or may not be present
4. Consistency—Across studies of good-to-excellent quality, similar findings are demonstrated most of the time

## Criteria For Determining Causation

5. Biological plausibility—The findings are biologically plausible
6. Coherence with existing knowledge & theory
7. Specificity—This works well with biological exposures where a given microorganism causes a given disease, but not other diseases
8. Experimentation—When feasible (and ethical), experiments by design or 'natural' ones show that when you remove or add an exposure, the disease appears or disappears or recovery occurs



## Public Health Decision Making

- Summarize the universal process I used to evaluate scientific evidence
- I also want to point out that my Professional Code of Ethics guided my decision-making

	<b>Chapman (2013)</b>	<b>Feder (2015)</b>	<b>Merlin (2013)</b>	<b>Massachusetts (2012)</b>	<b>Wisconsin (2014)</b>
Journal Impact Factor/ Integrative Review	PLOS One IF=3.234	Environ Res IF=3.951	Nat'l Health & Medical Res Council	Mass Dept Env Protection, MDPH Expert Panel 7 members*	Wind Siting Panel 14 members
Peer Review Process	Yes	Yes	Equivalent Scientific Adm	Equivalent Scientific Adm	Equivalent Scientific Adm BEOH/DNR
Authors' Credentials	PhD (Social Medicine)	PhD (Rehabilitative Science), PhD Epidemiology, 2 PhD (acoustics)	PhD (medicine), MPH	Public Health, Epidemiology, Toxicology, Neurology, Sleep Medicine, Neuroscience, Mechanical engineering	No credentials available as non- academic
Authors' Publications	Adequate	Adequate	Adequate	Well-published Interdisciplinary Team	Not Adequate
Authors' Institutional Affiliation	Sydney SPH, Univ. Sydney, Australia	Univ. Ottawa, Ontario & Env HD, Amsterdam	U. Adelaide, Adelaide Health Tech. Assessment	Boston Univ, Harvard Medical School., chaired LHD Officer, Umass- Amhurst, Univ New England, Harvard SPH, Comm. & Env Mgt Consultant	No Academic Affiliations, We Energies, Landowners, Public, Development
Research Methods	Cross-Sectional WEAK	Cross-Sectional WEAK	IR	IR	IR
Scientific Rigor/ Causation	WEAK No Causation	WEAK No Causation	WEAK No Causation	STRONG No Causation	WEAK No Causation

## Characteristics of other materials were found to be without merit

- Self-published (internet), non-peer reviewed sources
- Lacked appropriate credentials of authors
- Lacked credible academic affiliation(s)
- Lacked credible publications on this topic
- Used research methods that lacked scientific rigor
- **EXPOSURE TO WIND TURBINES WERE NOT LINKED TO HEALTH OUTCOMES**

## Conclusion

- Only 5 of the 91 (5.5%) submitted materials met the criteria for review
- There is insufficient scientific evidence-based research to support the relationship between wind turbines and health concerns or outcomes
- In the absence of sufficient scientific evidence, I cannot declare wind turbines to be a human health hazard
- I independently reviewed these materials and made my decision

## Conclusion

- I will continue to accept any new and current creditable scientific evidence-based literature
- I will also accept affidavits from your personal medical doctor or other personal qualified healthcare professional that will attest to your symptoms and their relationship to exposure to the wind turbines
- I will only provide updates on an annual basis regarding significant findings

## References

- Chapman, S. et al. (2013). The pattern of complaints about australian wind farms does not match the establishment and distribution of turbines: Support for the psychogenic, 'communicated disease' hypothesis. *PLOS ONE*. 16;8(10):e76584. doi: 10.1371.
- Council, W. W. (2014). *Wind turbine siting-health review and wind siting policy update*. Madison: Public Service Commission of Wisconsin.
- Feder, K. et al. (2015). An assessment of quality of life using the WHOQOL-BREF among participants living in the vicinity of wind turbines. *Environmental Research*, 142, 227-238.
- Gordis, L. (2014). *Epidemiology (5<sup>th</sup> ed.)*. Philadelphia: Elsevier.
- Merlin, T. et al. (2013). *Systematic review of human health effects of wind farms*. Canberra: National Health and Medical Research Council.
- Ellenbogen, J.M. et al. (2012). Wind Turbine Health Impact Study: Report of the Independent Expert Panel. Hadley: Massachusetts Department of Environmental Protection and Massachusetts Department of Public Health.

## Acknowledgements

Jeanne B. Hewitt, PhD, RN

Associate Professor, Environmental / Occupational Epidemiology &  
Environmental Public Health, College of Nursing

Director, Community Outreach & Engagement Core

Children's Environmental Health Sciences Core Center

Funded by the National Institute of Environmental Health Sciences

Carolyn Harvey, BS (biology)

University of Wisconsin-Madison

Masters in Public Health (MPH), Intern

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## Research Methods

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  - Focused, and use an objective design that can be replicated
  - Use stringent, unbiased protocols and appropriate data analysis
  - Results are fully reported and
  - Conclusions are consistent with results



## Journals

- Peer Review Process
  - Articles are written by *authors that should be* experts in the field and are reviewed by several other experts in the field before the article is published
  - Experts who review articles are carefully selected based on their scientific expertise, research methods, and *who are without bias* toward the authors of the research article
  - Peer reviewers should be free of real or perceived conflicts of interest and independent of the agency or research group under review

## A Research Report

- Literature Review
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Authors' Credentials	PhD (Social Medicine)	PhD (Rehabilitative Science), PhD Epidemiology, 2 PhD (acoustics)	PhD (medicine), MPH	Public Health, Epidemiology, Toxicology, Neurology, Sleep Medicine, Neuroscience, Mechanical engineering	No credentials available as non- academic
Authors' Publications	Adequate	Adequate	Adequate	Well-published Interdisciplinary Team	Not Adequate
Authors' Institutional Affiliation	Sydney SPH, Univ. Sydney, Australia	Univ. Ottawa, Ontario & Env HD, Amsterdam	U. Adelaide, Adelaide Health Tech. Assessment	Boston Univ, Harvard Medical School., chaired LHD Officer, Umass- Amhurst, Univ New England, Harvard SPH, Comm. & Env Mgt Consultant	No Academic Affiliations. We Energies, Landowners, Public, Development
Research Methods	Cross-Sectional WEAK	Cross-Sectional WEAK	IR	IR	IR
Scientific Rigor/ Causation	WEAK No Causation	WEAK No Causation	WEAK No Causation	STRONG No Causation	WEAK No Causation



# **Some Of The Case Studies That Have Convinced Me That Industrial Wind Turbines Make People Sick, Which Supports My Belief That We Can Prove In A Court Of Law That These Wind Turbines Are Causing Annoyance and Illnesses.**

**By: William G. Acker  
Acker & Associates**

**Prepared: December 27, 2015 through Jan. 27, 2016**

## **1. Cape Bridgewater Study in Australia**

This wind farm was built in Cape Bridgewater Australia which was built by Pacific Hydro and is made up of 29 Industrial Wind Turbines that are 2.0 MW in size or a total capacity of 58 MW. What is unique about this study is it is only one of a few in the world where the Wind Turbine Developer (Pacific Hydro) agreed to provide wind turbine performance data during the acoustical study. Also Pacific Hydro allowed affected residents to select the acoustician who would undertake the study which is Steve Cooper with Acoustic Group Pty Ltd in Lilyfield Australia. The size of the Industrial Wind Turbines is important because studies have shown that the larger wind turbines produce more noise in the infrasound range and low frequency noise range and they operate at lower rpm's which takes them into the range of maximum nausogenicity identified by a 1986 Navy Study and supported in a graph by Robert Rand showing Blade Pass Rate (in Hz) and Turbine Nameplate Rating (MW). Also unique to this study residents were asked to record ( using severity rankings) perceived noise impacts, vibration impacts and other disturbances which for the purpose of this study have been labeled sensation. Sensation includes headache, pressure in the head ears or chest, rining in the ears, heart racing or a sensation of heaviness in a diary format. The study used people who lodged complaints concerning the wind farm specifically to investigate a possible relationship to the observations and the wind farm that may not be apparent with a larger sample of people around the wind farm, in that it is acknowledged not all people complain about the turbines. The diary procedure provided regular observations (every 1 to 2 hours) not just the perceived changes using a 1 to 5 severity scale looking at sensation, perceived noise impacts, vibration impacts and other disturbances which were labled sensation. A ranking of 5 is a level that would make the specific residents in the study want to leave their premises to obtain respite.

- a. A pattern of high severity when wind turbines were seeking to start (and therefore could drop in and out of generation).
- b. A pattern of high severity with an increase in power output of the wind farm in the order of 20 % increase of power.

- c. A pattern of severity with a decrease in the power output of the wind farm in the order of 20 %.
- d. A pattern of severity when the turbines were operating at maximum power and the wind increased above 12 m/s.
- e. Examination of the acoustic environment in terms of narrow band analysis confirmed the results of previous investigation (such as Falmouth & Shirley). It demonstrated that there is a unique signature attributed to wind farms that involves a peak at the blade pass frequency and the first five harmonics of that frequency. This unique infrasound pattern has been labeled by the author in other investigations as the Wind Turbine Signature. The shutdown testing confirmed that the Wind Turbine signature is present when the wind turbines are operating but does not occur in the natural environment. The pattern confirms the presence of an amplitude modulated signal which is not present when the wind turbines are not operating.
- f. Significant pressure pulsations (peak to trough) were found that were also found in Falmouth and Shirley Wind. These pressure pulsations are the main focus of Professor Alec Salt that may lead to an imbalance in inner ear fluid levels and pressure leading to Endocochlear hydrops.

## **2. Falmouth Massachusetts**

This Wind Farm is located in Falmouth Massachusetts which was built by the Town of Falmouth and is made up of 2 Industrial Wind Turbines that are each 1.65 MW in size or a total of 3.30 MW. This project is unique in that the developer is the Town of Falmouth instead of a Local Utility or a Developer. What is unique about this study is that the town (the owner of the installation) participated in the noise study which has only happened in two cases that I know of. The noise testing identified amplitude modulation noise with very significant pressure pulsations from peak to trough in the 0 to 5 Hz range (infrasound range). The pressure pulsation was followed by harmonics that had even higher peak to trough pulsations which were not present when the wind turbines are shut down. The peak to trough pressure pulsations were around 12 dB. This is referred to as a Wind Turbine Signature in the Cape Bridgewater study. The town Selectmen (Aldermen) voted to shutdown and remove the wind turbines but when the Town's people heard that taxes would be raised to fund the removal the people asked for a town vote which decided to keep the wind turbines running. On November 22, 2015 the Barnstable Superior Court Judge Christopher J. Muse issued a preliminary injunction to sharply reduce the turbine's hours of operation. The Court found that the defendants in the case face a substantial risk that they will suffer irreparable physical and psychological harm if the injunction is not granted. Under the ruling, Falmouth's two wind turbines must be shut down from 7 p.m. to 7 a.m. Monday through Saturday and all day on Sundays, Thanksgiving, Christmas and New Years. This is believed to be the first time that a Court in the U.S. has ruled that there is sufficient evidence that wind turbines near residential areas are a health hazard to families living nearby.

**3. The Sound From A Wind Turbine Can Make Other Objects Vibrate (Such As The Body) If the Sound Frequency Matches A Resonant Frequency Of An Object.**

Doctor Jay Tibbetts has been studying cases of blurred vision which has occurred to one of the Acoustical Engineers during his testing at Shirley Wind, and a number of residents of Shirley Wind, and some residents near Fond du Lac wind turbines. Jay believes that the pressure pulsations off of the wind turbines maybe vibrating the vitreous humour of the eye ball and thus causing blurred vision and or lost depth perception. Jay's current focus is on one of the residents who has blurred vision in both eyes. Blurred vision is mentioned a number of times in the Affidavits submitted to the Brown County Health Department.

**4. Affidavits Submitted by Brown County Residents in Shirley Wind Indicating That The Wind Turbines Have Adversely Affected Their Health.**

To my knowledge there now are around 32 Affidavits (representing 50 individuals) submitted to the Brown County Health Department which does not include around 6 people that want to submit but will not if their information is not kept confidential. In my opinion 50 people for a 8 Wind Turbine Project is very significant. Also 80 complaints have been submitted to the Health Department.

**5. Wind Turbines Continue To Get Larger and Larger (both in size and MW Output) And the Noise Is Dropping In Frequency And The Content Of Low Frequency And Infrasonic Noise Is Increasing.**

A article titled "Low Frequency Noise From Large Wind Turbines" which appeared in the Journal Acoustical Society of America in June 2011. This study clearly shows that the noise in the infrasound range is increasing as the wind turbine size increases. Also the wind turbine rpm is decreasing pushing the noise down into the maximum

**6. Adverse Health Effects of Industrial Wind Turbines: a preliminary report. A document Prepared for the International Commission on Biological Effects on Noise (ICBEN) July 24-28, 2011. Prepared by Michael Nissenbaum MD, Jeff Aramini PHD and Chris Hanning MD.**

This was a study conducted at Mars Hill and Vinalhaven Maine. This study is a controlled study of the effects of Industrial Wind Turbine noise on sleep and health that showed that those living within 1.4 km (4593 feet) of IWT have suffered sleep disruption which is sufficiently severe as to affect their daytime functioning and mental health. Dr. Nissenbaum is a specialist in diagnostic imaging, whose training and work involves Developing and utilizing an understanding of the effects of energy desposition, including Sound on human tissues. He is a former Associate Director of MRI at a major Harvard Hospital, a former faculty member at Harvard University and a published author.

## **7. Closure of Mink Farm Located in Vildbjerg Denmark Due To Problems From A Wind Farm.**

In the fall of 2013 a new Wind Farm started up in Vildbjerg Denmark that is made up of 4 Wind Turbines that were 3.0 MW in size (the largest wind turbines installed on land). A mink farm owned by Kaj Bank Olesen is 328 meters (1076 feet) from that Wind Farm. Upon start-up in the fall the mink became aggressive, attacking one another which resulted in many deaths then within a month there were 320 female minks that had miscarriages and 1600 stillborn baby minks were found to have been delivered. The number is probably higher since the minks ate some of the stillborn pups. In addition 963 mink were sterile and another 2280 rejected male minks and failed to mate. The stillborn had many deformities and most were dead on arrival. The lack of eyeballs was the most common malformation. The veterinarians ruled out food, water and viruses as possible causes, the only thing different at the farm was the installation of the Wind Farm. The Wind Turbines are VESTAS model V112 3.0 MW units. These incidents are alarming as they constitute definitive proof that industrial wind turbines are harmful to the health of animals living near the wind turbines. A growing number of deaths and deformities of baby animals near wind turbines as well as high sterility rates in some adult animals is heightening fears among people living near wind turbines about potential impacts on their own health and the health of their children. There have been many reports of negative impacts from wind turbines on geese and other instances where health problems among livestock were observed including cattle deaths, high rates of stillborns and miscarriages among horses, chickens laying eggs with no shells or soft shells and birth defects among goats.

One good example of problems with animals locally is the Kevin Ashenbrenner Farm in Glenmore. Kevin and his cousin have seen their milk production drop off significantly from a high of 85 to 90 lbs of milk per cow per day down to below 39 lbs/cow/day. Kevin has also seen 19 of his cows die. Kevin also lost a new bull that he purchased that died within 3 weeks. In all of these deaths they did not find a cause. Kevin also had a calf that had badly swollen front ankles which he moved to another location which was 7 miles away from the wind turbines, that swelling went down significantly in just 10 days.

## **8. Professor Alec Salt at Washington University Medical School Department of Otolaryngology Study Using Guinea Pigs. His paper titled “ Large Endolymphatic Potentials From Low\_frequency and Infrasonic Tones in the Guinea Pig” published in the Journal of Acoustic Society America in March 2013.**

In this study exposing guinea pigs to infrasound noise. Sensors were placed on their brain which indicated that they were irritated by their exposure to infrasound. He then did a post mortem autopsy on the inner ear and found damage to the inner ear hair cells. This type of study cannot be conducted on humans.

Research by Dr. Alec Salt and his colleagues at Washington University School of Medicine in St. Louis Missouri , has explained how inaudible sound causes the kinds of adverse health symptoms reported by people who are exposed to wind turbine noise. That research has shown that infrasound is largely inaudible because inner hair cells, Which are most directly coupled to the brain, are relatively insensitive to very high frequencies, but the outer hair cells are sensitive to low frequency and infrasound components that are below the level that can be heard. Dr. Salt's research has shown that an anatomical pathway exists from the outer hair cells through the brainstem for infrasound to reach the brain. That pathway means that it is biologically plausible for infrasound to produce a variety of sensations, including pulsation, annoyance, stress, panic, ear pressure or fullness, unsteadiness, vertigo, nausea, tinnitus, and general discomfort. Other symptoms may include memory loss, disturbed sleep, blood pressure elevation and heart arrhythmias.

Another finding by Dr. Salt's research is that the presence of higher pitched sounds (between 150 to 1500 Hz) can suppress infrasound. This means that the ear is maximally sensitive to infrasound when higher frequency sounds are absent. While a building's walls and roof block some of the outside high frequency noise from entering the building, infrasound easily penetrates the structure (little to no attenuation). In this situation the infrasound entering the home can be most disturbing to persons inside their homes, because the higher pitched sounds are attenuated by walls and other physical structures.

## **9. Amplitude Modulation of Infrasound & Low Frequency Noise**

One of the theories to health effects is that the Amplitude Modulation of Infrasound and Low Frequency Noise has negative effects on the body. Neurophysiologist Professor Alec Salt and Lichtenhan have been investigating what happens when the proportion of sound energy is down in the lowest frequencies. They have found that the inner ear is exquisitely sensitive to the lower frequencies when there is very little ambient background noise and that infrasound generated by wind turbines cause amplitude modulation. Amplitude modulation is more dominant in wind turbine noise and is more disturbing. Acoustic Engineer Richard James claims that the majority of the acoustic energy is seen in the frequencies of 0.50 Hz to 3.0 Hz. According Alec Salt if the inner ear is exposed to infra and low frequency noise long enough it can develop an imbalance in fluid levels/pressures leading to Endocochlear Hydrops. This would explain the ear pressure and ear pain that some people experience.

An early focus on infrasound in literature was on audible noise and infrasound created by heating, ventilating, and air conditioning systems in industrial plants, eventually resulting in the coining of the term Sick Building Syndrome. Infrasound as well as low frequency sound (20 to 150 Hz), in these settings has been linked to a variety of symptoms, including fatigue, headache, nausea, concentration difficulties, disorientation,

seasickness, digestive disorders, coughing, visual problems and dizziness. In the late 1990's Wayne and colleagues found that exposure to low frequency ventilation noise that varied in amplitude over time was more bothersome, less pleasant, impacted work performance more negatively and lead to lower social orientation than low frequency sounds that are constant in intensity.

Amplitude modulated is a term often used to describe wind turbine noise (including Infrasound), refers to a sound that varies in intensity over either a short or long time period. The audible sound and infrasound from wind turbines typically vary over rather short time periods, generally on the order of seconds or fractions of a second. Wind Turbines generate measureable amplitude-modulated sound and infrasound and nearby residents find it highly disturbing. Symptoms vary from person to person, but they are well known to occur in a significant portion of such residents. The symptoms include sleep disturbance, annoyance, headaches, ear pressure or pain, dizziness, nausea, anxiety, and a general feeling of distress or discomfort. Some of the rarer symptoms are blurred vision and memory loss. This modulated noise produces significant pressure pulsations from peak to trough at the blade bypass frequency followed by harmonics that have even greater pressure pulsation. From peak to trough these pressure pulsations vary from 10 dB peak to trough up to 18 dB peak to trough at Shirley Wind, Falmouth and Cape Bridgewater. The Cape Bridgewater study called this Wind Turbine Signature or WTS. These pressure pulsations disappear when the wind turbines are shutdown.

Car Sickness is another form of illness created by pressure pulsations through an open car window. This illness has never been medically proven but the auto industry has worked hard to eliminate this problem. Studies show that a moving car with the rear windows open creates high velocity air that behaves as a source of specifically strong tonal low frequency noise which is annoying and can cause nausea. These studies indicate that long-term exposure of the energy rich low frequency noise can lead to harm to human health, and not only to the hearing organ but also functionality of other organs such as the central nervous system.

Cooling Tower Companies also recognize that infrasound and low frequency noise from cooling towers can be a problem. To prevent possible problems these manufacturers sell a line of cooling towers that produce very low levels of infrasound and low frequency noise. Bob and Leona Ehrfurth who live at 2048 Mary Queen Road in Green Bay are experiencing pressure pulsations from a Cooling Tower that is located at 1731 Morrow Street. Noise tests conducted by acoustical engineer Richard James found very similar pressure pulsations to that found at the Enz Family home near the Shirley Wind Turbines. Doctor Herbert Coussons and I brought the Enz Family and the Ehrfurth Family together into Dr. Coussons office to review their illnesses and we Found the illnesses to be very similar.

## 10. Epidemiologic Evidence

- a. A case-crossover study example. A case crossover study is one of the most compelling sources of epidemiologic data. It consists of observing whether someone's outcomes change as their exposure status changes. There are thousands of case crossover studies throughout the world.

The home of Darren & Sue Ashley located at 3820 Schmidt Road. Darren Ashley who lived in the Shirley Wind Project area began to experience fluid build-up in his ears and ear pain when he was home at night after the wind turbines began operation. When Darren went to work which was located far from the Shirley Wind Project area, he noticed that the fluid in his ears would drain. This is called a Epidemiologic cross-over study.

- b. A case-crossover study example: (3820 Schmidt Road)

After the Shirley Wind Turbines started up Allissa Ashley was not sleeping well and was tired all of the time and she told her mother that she had ear pressure and ear pain. According to her mother Allissa has never had ear infections even as a small child this all began after the wind turbines started up. Then one day in May 2011 the wind turbines were starting and stopping frequently and on that day when Allissa arrived home from school and she told her mother that right away she began to experience ear pain. According to the mother you cannot see the wind turbines through any of the home windows and there is no audible noise. Then Allissa told her mother that the ear pressure went away so her mother went outside and noticed that

the wind turbines had stopped. So her mother told Allissa to tell her the next time that she felt pressure and or pain. A little while latter Allissa said the pain was back and the mother went outside and found the turbine running again. The within 30 seconds to a minute Allissa said the pain stopped and they looked outside and the turbines had shut off. It was at that time that Darren and Sue Ashley came to the conclusion that they needed to move their family out of the home. So the family moved into a camper away from the Shirley Wind Project and the families symptoms of headaches and ear pain went away but they still had sensitive ears. What is also unique about Allissa's experience is that her annoyance and pain correlate well with the Cape Bridgewater Study which found a annoyance level of 5 (the highest annoyance ranking) when the wind turbines were starting and stopping. This example also clearly shows that people can sense the wind turbine shutting off and turning on without any visual of their operation and without any audible noise and they can sense these on and off cycles within one minute. The Cape Bridgewater study calls this sensation.

- c. A case-crossover example

Ben & Pamela Schauer and their 3 boys home at 6225 Highview Road. The entire Family experience health problems since the wind turbines started up. Pamela and the son Lance experience headaches when the wind turbines are operating and facing

their house (wind coming out of southeast). Pamela and Lance noticed that when they go into the home basement (below ground) their headaches go away within 10 minutes to 30 minutes. If they return upstairs when the wind turbines are running the headaches return within 30 minutes to 1 hour. The other son Michael also has headaches but when in school (away from the turbines) he has no headache problems. Lance also has no headache problems when in school. Ben experiences whooshing and pulsating sensation in his head that coincides to the rotation of the blades. He feels these pulsations on his body. Lance also experiences anxiety problems. His father Ben will take Lance on car rides away from the turbines to relieve the anxiety.

d. A case-crossover example:

The home of Dora Ashley located at 3712 Shirley Road. Since the Wind Turbines started up in November of 2010 Dora has experienced dizziness, ear pain and loss of sleep, increase in blood pressure and anxiety.. When she wants to feel better she goes to her daughters house in Wrightstown. On one visit which lasted three weeks her symptoms disappeared and her blood pressure dropped.

e. A case-crossover example:

In the Cappelle home at 5792 Glenmore Road Sarah and her son began to experience health problems when the wind turbines started up. Sarah began having problems with headaches, insomnia, ear pain, joint pain, muscle spasms, migraine headaches and vibration sensation through her entire body. Her youngest son began waking up at night every two to three hours some times screaming and panic attacks. When they moved away in 2012 the symptoms went away but they did notice that they were more sensitive when they went back to the wind turbine project site..

f. A case-crossover example:

In the Desotelle home at 4423 Shirley Road, Terry Desotelle began to experience health problems when the wind turbines started up. She experienced loss of sleep, ear problems, dizziness, nausea and anxiety. On a 5 day trip to Indiana her symptoms went away.

g. A case-crossover example:

In the Enz home at 6034 Fairview Road Dave & Rosemary Enz began to experience health problems when the wind turbines started up. They did not know of any health problems during the wind turbine project installation so they did not expect to have any problems. When the turbines started up both Dave & Rosemary became ill. Dave experienced a feeling of being unsteady and unstable, head pressure, blurred vision, an overwhelming desire to flee, panic attacks, ear pressure and pain, confusion, nausea and an inability to concentrate. Rosemary symptoms include memory loss, ear pressure and pain, overwhelming desire to flee, panic attacks, confusion, nausea and an inability to concentrate. In February 2011 Dave and Rosemary went on a weekend vacation and after a few days they noticed that they felt better and when they returned the symptoms returned. Dave and Rosemary then spent a month in the south away from the wind turbines during which the symptoms went away and they felt good again.



h. A case-crossover example:

The home of Darren & Jennifer Kornowske. Darren's symptoms include loss of sleep, headaches, migraines, anxiety, loss of concentration, muscle pain, hearing loss, loss of balance, clogging of the ears and depression. When he leaves for work in Appleton or Green Bay his symptoms start to leave starting with anxiety. When he works out of town like Atlanta, Chicago etc. after about one day he starts to regain better balance, his ears start to unclog, he sleeps all night without restlessness, headaches start going away, muscles and joints stop aching and his overall work experience and production picks up.

Jennifer's symptoms after the wind turbine start up include loss of sleep, headaches, migraines, anxiety, loss of motivation, memory loss, loss of concentration, muscle pain, hearing loss, and loss of balance. After the first few weeks of the wind turbines operating the entire family took a get away trip to Appleton and stayed at a hotel for a couple of days. The entire family slept so good and felt so refreshed that after two days they wondered what could be causing the change at their home.

i. A case-crossover study:

In the home of Steve and Sarah Peters at 6141 Morrison Road health problems began when the wind turbines started up. On start-up of the wind turbines Steve started to experience anxiety, pressure in ears, headaches, sinus problems and malaise. Sarah experiences muscle and joint pain, insomnia, dizziness and vertigo to the point of almost passing out. When they are not at home and away from the

turbines Steve's anxiety drops off and he is less prone to headaches. When Sarah is away from their home her dizziness drops off.

When the wind turbines started up their dog started to have violent seizures which he never had before the turbines start up. They took their dog to the veterinarian for an exam and the vet could not find anything physically wrong with him and the vet said it was highly unusual for a dog his age to begin having seizures. The dog is having seizures more frequently now which is a huge strain on his mental and his physical state. This is just one more case of animals adversely affected by Industrial Wind Turbines.

j. Revealed Preference case is information about individuals regarding the causal relationship and the intensity of costs inflicted upon them. Many people report expending substantial resources retrofitting their houses to reduce noise, selling their property at a loss, or abandoning their homes without being able to sell them.

The Dave and Rosemary Enz family is an excellent example of a family that has left their home and live out of a trailer in an effort to avoid the health problems at their home. There also is the issue of added cost to live in the trailer instead of their house which they have been doing for around 4 of DePere years now.

5

k. Revealed Preference case:

Darren and Sarah Ashley lived at 3820 Schmidt Road when the wind turbines started up and their illnesses started. To avoid health problems the Ashley's moved into a camper 12 miles away from the wind turbines. They lived in the camper for 100 days. Later the Ashley's purchased a second home and thus had to pay for two mortgages. The home they abandoned was a 5 bedroom 2 ½ bath home for six people to a much smaller two bedroom home with one bath.

1. Revealed Preference case:

Darrel and Sarah Cappelle lived at 5792 Glenmore road when the wind turbines and when the illnesses started. The moved out of that home and rented a home to get away from the illnesses. This home was a \$200,000 home so they looked for a buyer but the only buyer they could find offered around \$136,000 a \$64,000 potential loss for the Cappelle's. The loan which was a FHA loan was denied by FHA because the home was near the Shirley Wind Turbines.

## 11. Wind Farm Developers That Settled With Injured Residents

a. Macarthur Wind Farm located in Victoria Australia

This project was installed by AGL which consist of 140 wind turbines that are each 3.0 MW (very large units) for a total capacity of 420 MW. It is the largest wind farm in the Southern Hemisphere. A survey of impacts of the Macarthur wind energy facility was conducted on 37 homes. The aim of the survey was to establish how many people are impacted by the noise, shadow flicker and television and radio interference. There were 23 households that were affected (66 %) and a total of 62 people (74%) were affected and 22 people were not. Of The 23 household affected 21 households (91%) reported changes to their health. A number of residents were bought out by the wind developer but these families had to sign agreements containing confidentiality clauses which is a common practice through out the world. Some homes were bulldozed and some were left unoccupied. The law firm Slater & Gordon the legal firm acting for the residents publicly confirmed this practice of using confidentiality clauses.

b. Tom Yunk located at N2630 Townhall Road Kewaunee Wisconsin

Tom Yunk had a farm at this address at the time that the Utility WPS started construction on the Wind Farm in 1998 which consisted of 14 wind turbines called the Lincoln Wind Energy Facility with a Project Capacity of 9.24 MW or 0.66 MW each. The electrical output of this project was around 18,000,000 kwh /year (18,000,000 kwh/yr = 8760 hr/yr x 660 kwh/hr x 14 units x 0.2471 C.F.) When the wind turbines started up in the summer of 2000 Joe began to have health problems that he did not have before their start-up. He experience disturbing noise, shadow flicker, problems sleeping, stomach problems and a feeling of uneasy and irritability. At the stat-up of the wind turbines Tom had beef cattle

on his farm and he never lost any cattle before the wind turbines. After the wind turbines started up Tom began to loose cattle, he lost 10 animals over a two year period valued at \$5000. He reported his illnesses to WPS but nothing was done. Within a year of start-up two families homes were purchased by WPS and those homes were demolished with bulldozers. At the time WPS was settling nuisance suits other neighbors his neighbor were offered buyouts way below market value however Tom never got any buyout offers from WPS. So Tom decided to sue WPS for the fair market value of his house. So he retained an attorney and filed suit with WPS and got WPS to buy his home.

- c. Rodney Kok and his wife Sandra who lived at W1960 Longview Drive Cambria Wis.. Became ill as soon as the WE Energy's Glacier Hills Wind Park started up in 2011. This wind farm is made up of 90 turbines, each 1.8 MW in size (Vestas V90 units) The Kok home which is in the town of Cambria Wisconsin was purchased by the Utility WE Energies. This family also had chickens which stopped hatching eggs when the wind turbines started up. Rodney. This home is no longer occupied. They also had shadow flicker problems that lasted for over 280 hours/yr when they were told not to expect more than 10 to 15 hours/yr.
- d. Dave Regnarus family home at N8274 County Road Cambria, Wisconsin  
This family became ill as soon as the WE Energy's Glacier Hills Wind Park started up in 2011. This wind farm is made up of 90 wind turbines, each 1.8 MW in size (Vestas V90 units). The Regnarus home was purchased by WE Energy and that home has been torn down.
- e. Al Smits family home at N8103 East Friesland Road Randolph, Wis.  
This family became ill as soon as the WE Energy's Glacier Hills Wind Park started up in 2011. This wind farm is made up of 90 wind turbines, each 1.8 MW in size (Vestas V90 units). The Smit's home was purchased by WE Energy and this home Is no longer occupied.
- f. Six former wind turbine hosts in Ontario Canada became ill when the wind turbines started up on their land near their home. The wind turbine developer bought the homes and land from these 6 families. These families had to sign gag orders preventing them from talking about their illnesses and their settlement. The family of Shawn and Trisha Drennans who later bought a home in that region and got sick from these wind turbines. Currently they are trying to get an Ontraio court to lift the gag order so that these families could speak about their illnesses when they lived on these properties

Note: On January 20, 2015 UWGB Professor Patricia Terry spoke that night to The Brown County Health Department. On that night she said that Wind Turbine Syndrome in the United States is mainly the Green Eyed Monster of Jealousy when your neighbor is making money and you are not. From my above cases you can clearly see that this is not the case for these people.

## **12. European Countries Have Written Noise Codes To Protect Residents From Problems from Industrial Wind Turbines and Other Devices.**

The European countries of Poland, Germany, the Netherlands, Denmark and Sweden have written low frequency and infrasound noise codes to protect the public. To my knowledge there is no such code anywhere in the USA but acousticians like Richard James believe that a noise code could be written that would protect the public from this type of noise from Industrial Wind Turbines, Cooling Towers, Large Fans and Boiler Systems.

## **13. Sick Building Syndrome – Per Acoustical Engineer Richard James**

Modulated rumble low frequency noise produced by large fans has been one of the most frequently reported causes of adverse health effects. In the early 1960's a British acoustician observed that workers in a high rise office building sometimes reported symptoms similar to the wind turbine illnesses while at work. This effect was initially called Building Sickness Syndrome but was later changed to Sick Building Syndrome. The problem was so severe in some office buildings that workers refused to work in the office spaces and their employer's often used the situation to break long term leases with building owners. This led to a study in the U.S. by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) to identify the cause and corrections. The study spanned over 20 years culminating in a research project by Dr Leventhall.

The study found that the cause of the symptoms was the large fans used for ventilation being improperly installed or having a defect in the drive train that caused a jerk in the rotation of the fan. The jerk caused the low frequency sounds to fluctuate rapidly. In buildings that had these design defects the worker/tenant complains, correction of the fans to eliminate all modulation made the work space useable again. The design criteria for HVAC systems supplying ventilation air to large office spaces are published in the

ASHRAE Guide, a handbook for HVAC engineers. It was updated after the study found the cause and correction actions to include a procedure for assessing whether a building is likely to cause sick building syndrome so that it can be corrected during the construction phase. It is worth noting that many of the workers who found the situation unbearable could not hear the rumble from the fans.

## **14. Since 1973 The United States Government Has Sponsored A Research & Development Program In Wind Energy In Order To Make Wind Turbines A Viable Technology.**

Dr. Neil Kelly and his co researchers at the Solar Energy Research Institute (SERI) and the NASA Lewis Research Center under the sponsorship of the Dept. of Energy developed Utility Sized Wind Turbines before there was a utility sized wind turbine market. Their research started in 1975 and ended in 1996. This group developed built and tested a 0.10 MW unit (1975 to 1982), a 0.20 MW unit (1977 to 1984),

a 2.0 MW unit (1979 to 1981), a 2.5 MW unit (1982 to 1988), a 4.0 MW unit (1982 to 1994), a 3.2 MW unit (1987 to 1996) and a 7.3 MW unit that was not built. In 1985 Dr. Kelley revealed a source of annoyance for residents living near a single downwind bladed wind turbine was producing impulsive infrasound and low frequency noise which resonated within building structures. Their research was detailed, thorough, and conducted in the best scientific fashion- curiosity about unintended consequences or annoyance being reported by residents. They wanted to find out what was causing the reported problems, in order to prevent them occurring in the future.

This research document was published in February 1985 based on analysis of the MOD-1 wind turbine which was a 2.0 MW unit. This report is a very detailed 262 page report. It should be pointed out that the 0.10 Mw, 0.20 MW the 2.0 MW and the 4.0 MW units were all downwind wind turbines. The 2.5 MW the 3.2 MW and the 7.3 MW units were all upwind wind turbines. In November of 1987 Dr. Neil Kelley released a report called "A Proposed Metric for Assessing the Potential Annoyance from Wind Turbine Low-Frequency Noise Emissions".

The effects were consistently reported to be worst in small rooms facing the noise source. Sensitisation or conditioning was acknowledged - in simple terms people did not habituate or get used to the sound energy but became more sensitized to it with cumulative exposure. What was clearly established was that perception of the sound energy was well below the audibility thresholds for hearing in the infrasound range. This is a critically important point, because all too often it is asserted particularly by those with vested interest that it is the audibility thresholds which are the thresholds to consider, not the much lower infrasound perception thresholds. In other words people could feel the sound pressure or vibration and were disturbed by it at levels at levels where they could not hear. This is precisely what people living near wind turbines describe – that they can feel the pulsations or vibrations even when they cannot hear the turbines.

Subsequent laboratory experiments using volunteers working for SERI (rather than wind turbine noise sensitized residents) reproduced the sound energy and the variable effects on those exposed. In other words direct causation of the reported annoyance

effects from the impulsive reproduced sound energy identical to wind turbine noise was clearly established. This research was certainly noticed because it led to immediate changes in design from downwind bladed turbines to upwind bladed turbines, specifically to reduce or eliminate this problem of annoyance to the neighbors. However the safety thresholds for infrasound and low frequency noise exposure levels, established by Kelly in 1985 on the basis of their detailed field study and subsequent laboratory data, were not ever adopted in the noise guidelines for wind turbine noise. This research was presented at the American Energy Association Windpower conference in 1987, sponsored by the US Department of Energy.

It was initially thought that the new upwind bladed horizontal axis wind turbines did not generate high levels of infrasound and low frequency noise. NASA research

published by Shepherd and Hubbard in 1989 established that there was turbulent air feeding into the upwind turbines that could generate surprisingly high levels of infrasound and low frequency noise. This might explain why NASA went onto develop a 4.0 MW downwind wind turbine.

It is very clear from these documents that there is a direct casual link between impulsive Infrasound and Low Frequency Noise and annoyance symptoms which is still denied by the wind industry.

**15. British Medical Journal Acknowledges Health Impacts of Wind Farms. The title of this document is “Wind Turbine Noise Seems to Affect Health Adversely and an Independent Review of Evidence is Needed”. March 2012. Authors Dr.Christopher D Hanning and Professor Alun Evans.**

This is an excerpt from the BMJ article:

“Seems to affect health adversely and an independent review of evidence is needed. The evidence for adequate sleep as a prerequisite for human health, particularly child health, is overwhelming. Governments have recently paid much attention to the effects of environmental noise on sleep duration and quality, and how to reduce such noise. However, governments have imposed noise from industrial wind turbines on large swathes of peaceful countryside. The impact of road, rail, and aircraft noise on sleep and daytime functioning (sleepiness and cognitive function) is well established. Shortly after wind turbines began to be erected close to housing, complaints emerged of adverse effects on health. Sleep disturbance was the main complaint. Such reports have been dismissed as being subjective and anecdotal, but experts contend that the quality, consistency, and ubiquity of the complaints constitute epidemiological evidence of a strong link between wind turbine noise, ill health and disruption of sleep”.

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His expertise in this field has been accepted by the civil, criminal and family courts. He chairs the Advisory panel of the SOMNIAsudy, a major project investigating sleep quality in the elderly, and sits on Advisory panels for several companies with interests in sleep medicine..Alun Evans, is an epidemiologist, Centre for Public Health, Queen’s University of Belfast, Institute of Clinical Science B, Belfast, UK, who has been leading the fight in Ireland against industrial wind turbines being located near dwellings because of the adverse health effects on their inhabitants.

**16. People Who Have Gone Through Considerable Medical Analysis To Understand Their Health Problems, That Started When The Wind Turbines Started Up. Theses Health Studies of Their Symptoms Did Not Find Any Explanation To The Symptoms Other Than the Pressure Pulsations from the Turbines. In Some of Theses Cases the Doctors Did Believe That The Problem Was The Wind Turbines and in the Other Cases the Doctors Could Not Explain the Cause of the Symptoms Based on Their Tests Conducted In Their Offices Away From The Wind Turbines.**

- a. Joan Lagerman of Malone became ill from the We Energies Blue Sky Green Fields Wind Energy Center as soon as it started up. In a effort to understand and relieve her symptoms she has seen her doctor, has gone through sleep studies and has seen a neurologist who has eliminated many possible causes including exposure to heavy metals. Joan's doctor does believe that the wind turbines are the cause of her health problems in fact her doctor contacted the Fond du lac Health Department about her concerns and she is a board member.
- b. Michelle Buresh and Jerry Buresh are ill from the wind turbines in Shirley Wind. Michelle wanted to understand why she was ill so she saw doctors to find cures to her symptoms. She had hearing tests, MRI's, Basic Vestibular Evaluation, physical therapy, Blood Work for disease, deficiencies, pet hormone Test, Sinus CT Scan, Gastrointestinal Analysis, Opthamologist (focusing on the eyes), Review by 2 Neurologists, Review by her General Practioner, Vestibular Weakness Analysis, Review by an ENT Doctor, and a Naturopathic Nurse Practitioner who reviewed food allergies. In Michelle's case they could not find anything wrong with her that would explain her symptoms. Of course later she realized that the symptoms would stop when she was away from the wind turbines

**17. People Who Have Hosted Wind Turbine Installations On Their Land Have Become Sick From The Wind Turbines.**

- a. Allen Hass is a farmer who owns 600 acres in Malone Wisconsin. Allen hosted three We Energies Blue Sky Green Fields wind turbines on his land which pays him around \$12,000 a year for the space. Upon start-up Allen started getting symptoms which include headaches and memory loss. His statement to the press include "The money does not make up for his health problems" and "I wish I never made that deal".
- b. Dick Koltz who lives in Brown County signed a contract with Invenergy to host a wind turbine on his land. He has experienced illness from wind turbines in Fond du lac County before the wind turbine was installed on his land. He then tried to get out of his contract but could not.
- c. David and Alidia Millicent hosted wind turbines on their land in South Australia who became ill when the wind turbines started up.

## 18. List of Symptoms –Document from the Waubra Foundation

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### List of Symptoms

This section gives a detailed framework to assist with understanding the range and the pattern of symptoms being described by residents, workers and visitors.

People are affected by infrasound and low frequency noise (ILFN) and vibration from a wide variety of sources in both residential and occupational settings. Sources of ILFN reported to the Waubra Foundation include wind turbines, coal seam gas field compressors, coal mining activities, gas fired power stations. Some acousticians also report being affected whilst conducting attended measurements.

#### Residents can get started with a more simple summary

If you're new to the topic or looking for a less technical List of Symptoms, please get started with the [Information for Residents](#) section.

### What is the pattern of symptoms?

**For those affected, there is a clear and consistent correlation between exposure to the environmental noise and the development of characteristic symptoms.** Not everyone is affected, although over time, more and more people report developing sleep disturbance or other symptoms.

**The onset of symptoms is variable,** even within families where individuals have identical exposures. Many farming or rural families have one or more members 'off farm' for long periods of time, especially during the day, for education or employment activities, meaning there will generally be very different exposures during the day.

**Individual differences in susceptibility also play a role.** A small subgroup of people with a history of migraine, inner ear pathology or motion sickness describe being affected from the first few days of exposure, with nausea and vertigo in the case of wind turbine noise, but the vast majority of affected residents are not affected in this way.

**For most residents, the changes appear incremental over months or years.** Many people describe not realising how they are being affected until either the source of the noise ceases for a period of time (rare) or they go away and start to notice the symptoms dissipate or vanish completely. Often people describe this happening repetitively, before they are sure their symptoms are related to the environmental noise.



For those rural residents who never get away, they often attribute it to ‘getting older’, ‘menopause’ or some other factor, until they start talking with neighbours and others with similar experiences, and realise that there may be other reasons for their symptoms.

## **Turbine hosts get symptoms too**

David Mortimer, a wind turbine host from South Australia, has publicly described on a number of occasions how he just thought he was ‘getting older’, until he heard another resident from Cape Bridgewater speaking about his own symptoms, which were identical to those David had experienced for some years.

David describes being affected by the turbines much earlier than his wife. Once David made that connection between the symptoms and exposure to operating wind turbines, David and his wife then tried periods of time away from their home and kept track of what their symptoms and sleep patterns were like. They found their symptoms correlated directly with exposure to operating wind turbines.

The symptoms disappear when the Mortimers are nowhere near industrial wind turbines, but David and his wife have now become so sensitised that they can detect the unwelcome pulsating sensations particularly at night, out to 17 km from the nearest operating wind turbine.

This distressing perception of inaudible sound energy out to distances well beyond 10km has also been reported by residents who are sensitised both in Australia and internationally in the UK, France and the USA, particularly in areas with quiet background noise.

## **What is the most common symptom?**

**Recurrent sleep disturbance or waking up tired** is the most commonly reported problem.

## **What are the acute symptoms?**

### **Vestibular dysfunction/disorders or “wind turbine syndrome” symptoms**

(see also Dr Owen Black MD’s affidavit, and Dr Nina Pierpont’s executive summary and report for clinicians submitted to the Federal Senate Inquiry)

- Sleep disturbance
- Headache, including migraines
- Tinnitus
- Ear pressure (often described as painful)
- Balance problems / dizziness
- Vertigo
- Nausea
- Visual blurring
- Irritability
- Problems with concentration and memory
- Panic episodes
- Tachycardia (fast heart rate)

## Acute Sympathetic Nervous System ‘fight flight’ Symptoms & Problems

- Tachycardia (fast heart rate)
- Arrhythmias, which residents might describe as palpitations
- Hypertension (high blood pressure) which has been reported by some residents to be considered unstable by their treating doctor or cardiologist, and to vary in response to exposure to operating wind turbines.

### Related rare but serious conditions

The following three conditions are rare, but important to mention because they are potentially life threatening, and have been identified in Australia, Canada and Germany to correlate with wind turbine operation.

- **Tako Tsubo heart attack** — these are not the classic heart attack, involving acute blockage of a major artery to the heart muscle, rather they are caused by adrenaline surges which cause constriction of the little blood vessels called capillaries directly supplying the heart muscle
- **Acute hypertensive crisis (Australia, Ontario)** - sudden onset of dangerously high blood pressure, often accompanied by severe headache, nausea, sensation of their heart ‘leaping out of their chest’. The usual cause for these symptoms and this diagnosis caused by adrenaline surges would be an underlying adrenal tumour, called a pheochromocytoma. However in the residents reporting this problem, that diagnosis of an adrenal tumour was specifically excluded by subsequent medical investigations
- **Crescendo angina** — i.e. worsening severe cardiac ischemic chest pain which was previously successfully relieved with anginine spray, when not exposed to operating wind turbines. The best clinical description of this came from a couple in Germany highly sensitised to ILFN after 18 years of exposure, who were stuck in a vehicle on an

autobahn near large industrial wind turbines. The same phenomena has been reported in Australia by a resident subsequently advised verbally by his cardiologist never to go back home to Waterloo

### Other characteristic symptoms (some have a chronic exposure component but manifest with acute symptoms)

- Episodes of sensation of body vibration (specifically lips, chest cavity and abdomen)
- Episodes of intense anger (reported in workers as well as residents, also noted to a much lesser extent with short exposure to infrasound and low frequency noise (ILFN) in Professor Leventhall’s experimental research in an office occupational setting in 1997)
- Bleeding from ear drum following intense and painful sensation of ear pressure, in the absence of trauma or previous symptoms
- Deteriorating hearing (confirmed sometimes with audiological assessment)
- Menstrual irregularities in women marked by heavy bleeding and noticeable hormonal cycle changes
- Significantly decreased ability to “multi task” impacting noticeably on resident’s ability to perform usual tasks
- Noticeable difficulties with mental arithmetic, when previously able to calculate easily
- Hyperacusis – extreme sensitivity to “normal” sounds which in some circumstances has persisted for over 6 years after removal from the exposure to ILFN
- Disorders of thyroid metabolism which stabilize when away from ILFN
- Disorders of diabetes control, which stabilize when away from ILFN

- Disorders of blood pressure control, which stabilise when not exposed to ILFN
- Migraines and severe headaches described by sufferers as “like a vice around the head”
- Episodes of perceiving that their heart beat is trying to “get in sync” with the blade pass of the turbines, which some people describe as being like an arrhythmia but others do not. It is universally described as unpleasant

## **Chronic symptoms**

### **Sleep disturbance & its consequences**

Sleep disturbance itself has been attributed by residents to the following, which they report does NOT happen when they are not exposed to operating wind turbines, and correlates with wind direction and weather conditions on the nights when they are affected in this way:

- Audible noise of the turbines (especially if their home is not well insulated, or the windows are open, and they live close to the turbines)
- Waking at night in the characteristic ‘panicked’ state (many residents living far from turbines report this symptom despite not being able to see or hear the turbines when they awake)
- Violent and disturbing dreams in adults and children, which can happen repeatedly over the same night. In the case of children, they can be extremely distressed and difficult to console
- Increased need to urinate, sometimes as often as every 10 minutes for a period of up to one hour (sometimes this affects numerous people in the house at once)
- Bedwetting in children reported by parents to have been previously dry at night for some years

### **Known clinical consequences of repetitive sleep disturbance/deprivation**

The adverse health consequences of insufficient sleep have been well known to clinical medicine for decades, and are increasingly being reflected in the peer reviewed published literature. They include the following:

- Cardiovascular disorders (including hypertension) ischemic heart disease, angina
- Diabetes
- Mental health disorders such as depression and anxiety, and increased suicide risk
- Impaired immunity, leading to increased acute and chronic infections, and in the longer term malignancies (cancers)
- Fatigue-related work impairment and accidents. This is a serious issue for rural communities and farms, where workplace injury is already a significant problem
- Fatigue driving heavy vehicles and school buses (a safety concern for the entire rural community)
- Fatigue in workers such as health care workers (Australia), air traffic controllers (USA), well known to lead to impaired judgment which will detrimentally impact on the safety of the wider community, in addition to personal health problems for those individuals

## **Chronic stress (Psychological & Physiological) & its consequences**

Illnesses either caused or exacerbated by chronic stress have been well documented in published peer reviewed research literature for many years, and are being reported by these residents. Some overlap with those listed above for sleep disturbance, which is itself a source of stress. They include the following:

- Cardiovascular disorders (including hypertension), ischemic heart disease, angina, and transient ischemic attacks (precursors of strokes)
- Diabetes
- Mental health disorders such as depression and anxiety, often severe (suicidal ideation)
- Impaired immunity, (elevated cortisol being one component) leading to increased acute and chronic infections, delayed healing, and in the longer term to malignancies (cancers)
- Disrupted human fertility and hormonal cycles
- Exacerbation of pre-existing inflammatory disorders, including arthritis, asthma, inflammatory bowel disease, SLE (Lupus), or the development of new inflammatory conditions which coincide with exposure to ILFN & vibration

## **Is there a link between ILFN and Post Traumatic Stress Disorder (PTSD)?**

Repetitive physiological stress events as well as a once off major acutely stressful event like a fire or a flood or a major accident have both been linked with subsequent development of PTSD.

There are residents living near ILFN sources who have reported that symptoms of their pre-existing PTSD (resulting from Vietnam War experiences or childhood sexual abuse) are triggered with exposure to operating wind turbines. Other residents with a history of PTSD have reported feeling the symptoms of a panic attack coming on when driving past operating turbines (these individuals were unaware of any possible connection between ILFN and anxiety symptoms, and were strong supporters of wind turbines at the time).

Helicopter noise, and blast noise and vibration from mining have also been reported by other clinicians as triggers for recurrence of PTSD symptoms in their patients. All these are also known sources of ILFN & vibration, as well as sources of sudden impulsive noise.

There are also reports of people who develop PTSD **after** exposure to operating wind turbines, having no previous psychiatric problems. One former resident at a wind development has ongoing problems with residual PTSD seven years after they moved away, having been bought out and silenced by the wind developer.

## **Stress and dental disease**

Stress is an acknowledged long term contributor to dental disease via a number of mechanisms including impaired immunity and a dry mouth from repetitive physiological stress episodes. Increased severity of dental infections has certainly been reported by some residents living near turbines who report this as one of a number of health problems.

## **Tissue damage**

The conditions below have been reported from Germany in residents exposed to operating wind turbines for over 10 years.

- Pericardial thickening
- Mitral and tricuspid valve thickening
- Characteristic mouth ulcers described in Vibroacoustic disease

The cardiac tissue pathology is identical to that described in workers and others studied by the Portuguese researchers who first described vibroacoustic disease (VAD), now being diagnosed in others including most recently in Taiwanese aviation workers.

## **The occurrence of symptoms correlating with ILFN exposure**

**All of the above problems listed have the characteristic pattern of improving partially or completely when the turbines are off, or when the residents are away from their homes or source of other ILFN.**

Some residents also report subsequently being affected by other sources of ILFN, such as when flying in some aeroplanes, or when exposed to LFN from heating and cooling (air conditioning) compressors, or travelling in some motor vehicles. This is not unknown to acousticians, and is evidence of that individual's sensitisation to ILFN, described by Professor Leventhall in 2003. The only known solutions are either removal of the source of the ILFN, or relocating away from it.

## **What happens with ongoing exposure? Do people “get used to it”?**

What is being consistently observed is that the symptoms progress, and the mental and physical health of many sick people deteriorates with ongoing exposure to ILFN, if they cannot move away.

This pattern of deterioration was well described in the scientific literature relating to chronic stress by Bruce McEwen in 1998, in an important review article in the New England Journal of Medicine. (McEwen, Bruce “Protective and Damaging Effects of Stress Mediators” New England Journal of Medicine 1998, 338 171–179)

**There is no clinical or experimental evidence that people “get used to” the sound energy in low frequencies, especially once they are “sensitised”.**

## **18. Can Expectations Produce Symptoms From Low Frequency Noise & Infrasound Associated With Wind Turbines?**

First, most of the individuals who have reported adverse health effects from wind turbine noise, some of whom have abandoned their homes, are not people who were adequately warned of potential health effects prior to their exposure. In fact, many individuals who report adverse health effects were advocates of wind energy prior to being exposed. This is the case of many people in the Shirley Wind Project area and other wind turbine projects in Wisconsin. Some of these people who became ill did not understand why they were ill and thus saw many doctors to understand why they had symptoms making them ill. Two examples are Joan Lagerman and Michelle Buresh.

Also how do you explain all of the negative health impacts we have seen on animals like the mink farm in Australia, or the death of cattle, or the chickens that either stopped laying eggs or laid eggs with thin shells. So it is easy to disprove that theory that the symptoms are psychosomatic.

There are many cases in Wisconsin and throughout the USA where the people supported wind turbine projects until they started up and the people got sick. One excellent example is the wind project called the Fox Islands Wind Project in Vinalhaven Maine that was installed by Fox Islands Electric Cooperative which is a utility cooperative that provides electricity for the residents of Penobscot Bay Islands, North Haven and Vinalhaven. Vinalhaven is the home to the Fox Islands Wind Project that is three 1.5 MW industrial wind turbines. In July 2008 ratepayers voted 382 to 5 (98.71 % Voting for the project) to authorize the FIEC Board to Directors to proceed with developing plans to erect three wind turbines on a site located on the interior of Vinalhaven. In the first 10 minutes of operation around 20 households in Vinalhaven began to complain about the noise, pressure pulsations and later lack of sleep and health problems. So one cannot say that these people were having a psychosomatic symptoms. There are 32 adults that live within 1500 meters (0.93 miles) of the three wind turbines.

Perhaps the most compelling argument proving that the wind turbine did not cause Psychosomatic health symptoms is NASA's first utility sized wind turbine project caused health illnesses to the residents living near that wind turbine. These people did not experience psychosomatic health symptoms because they did not know about health problems from industrial wind turbines. So this is not a placebo effect or anxiety generated by heightened awareness of industrial wind turbines. The health symptoms are documented in NASA Reports by Dr.Neil Kelley.

**19. Epidemiological Study of Health Effects of Persons Living Within 1100 meters Of the Mars Hill Wind Turbine Project. This project has 28 wind turbines that are 1.5 MW in size. Study by Dr. Michael M. Nissenbaum.**

	<u><b>Subject Group</b></u>	<u><b>Control Group</b></u>
<b>a. Group Size</b>	<b>22 Adults of 30 Adults (73.33 % Participation)</b>	<b>27 Adults</b>
<b>b. Distance From Turbines</b>	<b>1100 meter 3608.93 feet 0.6835 miles</b>	<b>5000 meters 16,404.23 feet 3.1069 miles</b>
<b>c. Reported a new onset of worsened sleep disturbance</b>	<b>18 Adults (82%)</b>	<b>1 Adult (4 %)</b>
<b>d. Sleep disturbance included waking up in the middle of the night</b>	<b>17 adults (77 %)</b>	

	<u>Subject Group</u>	<u>Control Group</u>
e. Increased headaches since start-up.	9 Adults (41 %)	1 Adult (4%)
f. Increased migraine frequency	2 Adults (9 %)	
g. New or worsened problems with dizziness	3 Adults (14 %)	0 Adults (0 %) No auditory or vestibular complaints
h. Reported Tinnitus	3 Adults (14 %)	0 Adults (0 %)
i. Reported a new problem with ear pulsations	3 Adults (14 %)	0 Adults (0 %)
j. Reported periodic ear pain	1 Adult (5 %)	0 Adults (0 %)
k. Troubled by shadow flicker	7 Adults (32 %)	0 Adults (0%)
l. Nausea	2 Adults (9 %)	0 Adults (0 %)
m. Dizziness	4 Adults (18 %)	0 Adults (0 %)
n. Triggering migraine headaches by shadow flicker	1 Adult (5 %)	0 Adults (0 %)
o. A feeling of unease created by shadow flicker	2 Adults (9 %)	0 Adults (0 %)
p. Unintentional weight changes	8 Adults (36 %)	1 Adult (4 %)
q. New or worsened psychiatric symptomatology, including feelings of stress	13 Adults (59 %)	0 Adults (0 %)
r. Anger	17 Adults (77 %)	0 Adults (0 %)
s. Anxiety	7 Adults (32 %)	0 Adults (0 %)
t. Irritability	6 Adults (27 %)	0 Adults (0 %)
u. Hopelessness	12 Adults (55 %)	0 Adults (0 %)
v. Depression	10 Adults (45 %)	0 Adults (0 %)

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<b>w. New or increased prescriptions for psychiatric medication</b>	<b>4 Adults (18 %)</b>	<b>0 Adults (0 %)</b>
<b>x. Considered moving away</b>	<b>22 Adults (100 %)</b>	<b>0 Adults (0 %)</b>
<b>y. Reported that their quality of life has been negatively affected by the Mars Hill Wind Turbine Project</b>	<b>21 Adults (95 %)</b>	<b>0 Adults (0 %)</b>
<b>z. Reported new and increased prescriptions for various health ailments since Project start up o Dec. 2006</b>	<b>15</b>	<b>4</b>
	<b>Cymbalta</b>	<b>Antihypertensives: 3</b>
	<b>Mirtazepine</b>	<b>Antiarthritic :1</b>
	<b>Trazodone</b>	
	<b>Hydrocodone</b>	
	<b>Topamax</b>	
	<b>Anxiolytics: 2</b>	
	<b>BP Meds: 3</b>	
	<b>Lexapro</b>	
	<b>Zoloft</b>	
	<b>Meloxicam</b>	
	<b>Tylenol III</b>	

Comment By Dr. Nissenbaum: It is my professional opinion that there is a high probability of significant adverse health effects for those whose residence is located within 1100 meters of a 1.5 MW turbine installation based upon the experiences of subject group of individuals living in Mars Hill, Maine. One hundred percent of the persons he interviewed reported that they considered moving away, but none of the Control Group admitted to considering moving away during that time.

Later Dr. Michael Nissenbaum, Jeffery Aramini and Christopher Hanning published a epidemiological study document called: "Effects of Industrial Wind Turbine Noise on Sleep and Health", in Noise & Health September 2012. This study is an investigation of two sites: Mars Hill and Vinalhaven, Maine. The Vinalhaven Project is three 1.5 MW wind turbines. This study came to similar conclusions to the above study. The Conclusion for this study is: We conclude that the noise emissions of Industrial Wind turbines disturbed the sleep and caused daytime sleepiness and Impaired mental health in residents living within 1400 meters of the two IWT installations studied. industrial wind turbine noise is a further source of environmental noise, with potential to harm human health. Current regulations seem to be insufficient to adequately protect the human population living close to IWT's. Our research suggests that adverse effects are observed at distances even beyond 1 km. Further research is needed to determine at what distances risks become negligible, as well as to better estimate the portion of the population suffering from adverse effects at a given distance".

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**20. Falmouth Massachusetts Study- “Wind Turbine Acoustic Investigation: Infrasound And Low-Frequency Noise- A Case Study”. Authors are Stephen E. Ambrose, Robert W. Rand, and Carmen M.E. Krough. This is a SAGE Document on September 11, 2012.**

In this study, they compared measured sound levels to time-synced observations of changes in health symptoms while the authors (observers) –who were the investigators themselves–were not aware when the turbine blades were rotating or not rotating. A video recorder that faced the turbines and an audio recorder placed outside the home were used to document the sounds using quantitative and qualitative measurements that were time-synced to the observations of health effects. Using a time-history analysis, the investigators experienced a large number of negative health symptoms, which are given in their Table 2, and those symptoms were closely time-synced to the start-and-stop operations of the wind turbines. This is comparable to a single-subject research design, and it provides good evidence that wind turbine noise is related to adverse effects.

For total unweighted sound exposure, the investigators were exposed to dynamically modulated pressure pulsations every 1.4 seconds (Notus 1.65 MW Blade pass rate) at the study house (Figure 15). The pressure pulsations at Shirley wind were every 1.40 seconds per blade passage. After being indoors for 15 minutes, the pulsations totaled 642 peak pressure events. Every hour there are 2570 pressure events. After completion of this study the team developed infrasound measurements at the Neil and Betsy Anderson home. This Figure 2 plots the Sound Pressure Level in dB verses the Frequency Hz of the sound. This diagram shows the pressure pulsations from peak to trough from 1 Hz and below through 10 Hz. The pressure pulsations shown are the first blade bypass followed by Harmonics of 1 x BPF, 2 x BPF (first harmonic) 3 x BPF, 4 x BPF, 5 x BPF, 6 x BPF, 7 x BPF and finally 8 x BPF. The peak to trough noise peaks out at around 14 dB (peak to trough), which is a significant pressure pulsation. According to acoustical engineer Richard James the majority of the acoustic energy is seen in the frequencies of 0.50 hz to 3.0 Hz. The absolute pressure level of the noise is not the issue or concern, it is the rate at which the pressure changes. Malcolm Swinbanks paper from the 2012 NY Noise Con is a good explanation of how amplitude modulation of wind turbine acoustic energy can result in symptoms even when the average pressure level is relative low. Salt's paper from the same conference shows how factors such as spectrum shape can also affect the SPL at which symptoms are reported. Richard's measurements show that the average levels at blade pass frequencies are generally 60 dB or higher at the BPF although some show SPL's of less than 60 when the home's occupants are also reporting adverse symptoms.

In my opinion most of the adverse health effects from industrial wind turbines is due the dynamically modulated pressure pulsations. In my opinion if we write a noise code that limits these peak to trough pulsations to 3dB (peak to trough) at the residential property line, the health symptoms due to this modulated noise should disappear. Some European Noise Codes use this guideline of 3 dB (peak to trough).

The question is can the Brown County Health Dept. testers, test for this modulated Noise peak to trough values at Blade Bypass and its harmonics?

These codes will also need to limit shadow flicker and audible noise that can also cause annoyance and or health symptoms..

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**21. Self Reporting Surveys to Resident Living in the Waterloo Wind Farm in South Australia. This wind farm has 37 Vestas V90 industrial wind turbines that are 3.0 MW in size which started up in 2011. Upon start-up there were many negative sleep loss and health impact complaints from the residents and effects on livestock (most notably poultry).**

- a. Case #1 – Survey of households within 5 km (3.1069 miles)
  - (1) Number of surveys sent out: 75
  - (2) Number of surveys completed: 48 (64 % response rate)
  - (3) 50 % of residents were moderately affected to very affected
  - (4) 38 % had adverse health effects
- b. Case #2 – Anonymous Self Reporting Survey of Households near a 10 km (6.2137 miles) zone of the Waterloo Farm. Conducted by Mary Morris.
  - (1) Number of Surveys to homes sent out: 230
  - (2) Number of Surveys by homes that were completed: 93 (40.43 %)
  - (3) Number of homes disturbed by impacts including noise, shadow flicker and problems with TV reception in the 10 km zone: 46 (49 %)
  - (4) Day time noise disturbance: 36 (39 %)
  - (5) Night time noise disturbance: 37 (40 %)
    - (a) Number with sleep disturbance: 27 (29 %)

Survey of people in a 5 km (3.1069 miles) -41 Households in this zone

- (1) Day time noise disturbance: 23 (56 %)
- (2) Night time noise disturbance: 23 (56 %)
- (3) Experienced sleep disturbance: 16 (39 %)

**22. Mrs. Anne Schafer has compiled this preliminary survey report from data collected from an anonymous survey of residents living within 10 km (6.2137 miles) of the AGL Macarthur Wind Development in southwest Victoria. The first VESTAS V112, 3 MW Industrial wind turbines started operation in October 2012. A total of 130 wind Turbines were installed.**

- (1) 66 % of the responding households reported being adversely impacted
- (2) 100 % reported night time adverse effects including sleep disturbance
- (3) 91 % reported negative effects on the resident's health
- (4) 46 % of the households lived between 2 km and 5 km from the nearest turbine

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- (5) 18 % lived between 5 km and 10 km from the nearest turbine
- (6) The furthest household reporting adverse impacts live 8km to 9 km (4.97 mi to 5.59 mi)

**23. Statement made by Epidemiologist Carl V. Phillips, PhD in his SAGE article “Properly Interpreting the Epidemiologic Evidence about the Health Effects of Industrial Wind Turbines on Nearby Residents “, August 2011.**

**Carl’s Statement:** “There is overwhelming evidence that wind turbines cause serious health problems in nearby residents, usually stress-disorder type diseases, at a nontrivial rate. The bulk of the evidence takes the form of thousands of adverse event reports. There is also a small amount of systematically-gathered data. The adverse event reports provide compelling evidence of the seriousness of the problems and the causation in this case because of their volume, the ease of observing exposure and outcome incidence, and case-crossover data. Proponents of turbines have sought to deny these problems by making a collection of contradictory claims including that evidence does not “count”, the outcomes are not “real” diseases, the outcomes are the victims’ own fault, and that acoustical models cannot explain why there are health problems so the problems must not exist. These claims appeared to have swayed many nonexpert observers, though they are easily debunked”.

**24. Carl V. Phillips testimony on June 30, 2010 in Madison Wisconsin to the Public Service Commission of Wisconsin.**

Partial Statement: “So. I’m an epidemiologist and policy researcher. I’m specifically expert in how to optimally derive knowledge for decision making from epidemiological data. I have a PhD in public policy from Harvard University, and I did a post doctoral fellowship in public health policy and the philosophy of science. I’ve spent most of my career as a professor of public health and medicine, most recently at the University of Alberta and I currently direct an independent research institute.” I reviewed the literature on health effects of wind turbines on local residents, including the reports that have been prepared by industry consultants and the references therein and I have reached the following conclusions which I present in detail in a written report that I believe will be submitted (to the commission). First there is ample evidence that some people suffer a collection of health problems including insomnia, anxiety, loss of concentration, general psychological distress as a result of being exposed to turbines near their home. The type of studies that have been done are not adequate to estimate what portion of the population is susceptible to the effect, the magnitude of the effect or exactly how much exposure is needed before the risks become substantial, but all of these could be determined with a fairly simple additional research. The best evidence we have which has been somewhat downplayed in previous discussion is what’s known as case cross-over data, which is one of the most useful forms of epidemiological study, where both the exposure and the disease are transitory. That is, it’s possible to remove the exposure and see if the

disease goes away, and reinstate it and see if the disease reurs which is exactly the pattern that has been observed for some of the sufferers who have physically moved away and sometimes back again. With that study design in mind we actually have very substantial amounts of data in a structured form, contrary to some of the claims that have been made. And more data of this nature could easily be gathered if an effort was made. Moreover, people's avoidance behavior. They're moving from their homes and so forth, is a clear revealed preference measure of their suffering. Such evidence transforms something that might be dismissed as subjective experience or perhaps fakery to an objective observation that someone's health problems are worth more than the thousands of dollars they've lost trying to escape the exposure".

**Carl V. Phillips submittal of a document to the Public Service Commission of Wisconsin on Docket No. 1-AC-231 which is document PSC REF#:134274. In this document Carl makes the following statement:**

Epidemiology is the study of actual health outcomes in people, and thus is the only science that can directly inform us about actual health risks from real-world exposures. Related biological and physical sciences often provide useful information about health risks, but they are ultimately trumped by epidemiology because real-world exposures and the human body and mind are so complex that we cannot effectively predict and measure health effects except by studying people and their exposures directly.

There is ample scientific evidence to conclude that wind turbines cause serious health problems for some people living nearby. Some of the most compelling evidence in support of this has been somewhat overlooked in previous analysis, including that the existing evidence fits what is known as case-crossover study design, one of the most useful studies in epidemiology, and the revealed preference (observed behavior) data of people leaving their homes, etc., which provides objective measures of what would otherwise be subjective phenomena. In general this is an exposure-disease combination where causation can be inferred from a small number of less formal observations than is possible for cases such as chemical exposure and cancer risk.

**In this document Carl also said:**

In particular, my scientific analysis is based on the following points, which are expanded upon below:

1. Health effects from the turbine noise are biologically plausible based on What is known of the physics and from other exposures.
2. There is substantial evidence that suggests that some people exposed to wind turbines are suffering psychological distress and related harm from their exposure. These outcomes warrant the label "health effects" or "disease" by most accepted definitions, though arguments about this are merely a matter of semantics and cannot change the degree of harm suffered.

3. The various attempts to dismiss the evidence that supports point 2 appears to be based on a combination of misunderstanding of epidemiologic science and semantic games. Multiple components of this point appear below.

**24. The World Health Organization in their 1999 Guidelines for Community Noise document made the following comment:**

“It should be noted that a large proportion of low-frequency component in a noise may increase considerably the adverse effects on health”.

**25. The Royal Society is an independent Scientific academy of the United Kingdom and the Commonwealth, dedicated to promoting excellence in science. The Royal Society Open Science is a peer-reviewed open access scientific journal published by the Royal Society which covers all scientific fields. In August 2014 the journal published a study called “Low-Frequency Sound Affects Active Micromechanics In the Human Ear” by Dr. Markus Drexel and his team at the University of Munich. Dr. Drexel is with the German Center for Vertigo and Balance Disorders and the Department of Otorhinolaryngology, Head and Neck Surgery.**

Noise Induced hearing loss is one of the most common auditory pathologies, resulting from overstimulation of the human cochlea, an exquisitely sensitive micromechanical device. The cochlea is a spiral shaped cavity which is essential for hearing and balance. Dr. Drexel showed in lab conditions that low frequency sounds (including infrasound) have a surprising strong effect on sensory cells in the inner ear. A total of 21 volunteers with normal hearing were exposed to 30-Hz tone for 90 seconds at a sound pressure level equivalent to 80 decibels. The researchers used a phenomenon referred to as spontaneous otoacoustic emissions (SOAE's) to explore how the inner ear responded to the signal. SOAE's are scarcely perceptible acoustic signals that are produced by the inner ear and can be detected with a sensitive microphone inserted in the ear canal. Dr. Drexel said: It turns out that low-frequency sounds have a clearly definable modulatory influence on spontaneous otoacoustic emissions. After being exposed to a 30-Hz signal for 90 seconds, the subjects' SOAEs exhibited slow oscillations in frequency and level, which persisted for up to two minutes. Otoacoustic sounds normally stay at the same frequency but when volunteers listened to low frequency noises the sounds their ears emitted began to slowly oscillate in frequency. The researchers say this is an indication that low frequencies were altering the mechanisms at work in the inner ear. The oscillation lasted for up to two minutes after the low frequency sound was played to the volunteers. “Strikingly, the effect of the low frequency stimulus on the cochlea persists for longer than the duration of the stimulus itself,” Drexel points out. This can be interpreted as a change of the mechanisms in the inner ear, produced by low frequency sounds. This could be the first indication that damage might be done to the inner ear. Further experiments will probe the possibility that this phenomenon may be linked to noise-induced auditory

damage, one of the most common causes of hearing impairment in industrialized countries.

Outer hair cells, which are responsible for amplifying sound waves in the ear, are more sensitive to low frequency sounds than inner hair cells. They are thought to be responsible for otoacoustic emissions and these results show that they could be affected when exposed to low frequency sound waves.

The team say the results could have repercussions in assessments of risk potential of exposure to low frequency sounds, for example those produced by wind turbines, block-type thermal power stations, and air-conditioning systems.

“We don’t know what happens if you are exposed for longer periods of time, (for example) if you live next to a wind turbine and listen to these sounds for months or years”.

So in summary it is possible that wind farm infrasound can cause hearing damage. We are seeing this happen to Leona Ehrfurth who is exposed to infrasound Generated by Cooling Towers on the east side of Green Bay. I would also like to Point out that Professor Alec Salt found damage to the inner hair cells of guinea Pigs exposed to Low Frequency noise, which is covered in his SAGE article called “Large Endolymphatic Potentials from Low Frequency and Infrasonic Tunes in The Guinea Pig”.

**26. Fibrosis ,Thickening and Scaring of Connective Tissue as a Result of Injury from Exposure to Low Frequency Noise and Infrasound. This includes damage to Lung Tissue, Heart Tissue, Blood Vessel Walls, Cardiac Valves and Pericardium Sac. Exposure will result in abnormal growth of collagen in blood vessel walls, tracheal wall pleural sac, stomach wall, and kidney glomeruli. Also the cilia that line the respiratory tract are severely damaged. The following article on Vibroacoustic Disease was presented at the 11 th International Meeting on Low Frequency Noise and Vibration and its Control “Vibroacoustic Disease- The Response of Biological Tissue To Low Frequency Noise”.**

# Mobile Crisis Expansion

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## **Introduction:**

Counties are responsible for providing emergency mental health services to residents of their county. Counties are required to have a crisis program that responds to emergent mental health situations, including emergency detentions.

The general requirements for crisis services, per administrative code and agreements between the State and Brown County include:

- Provide immediate evaluation and mental health care to persons experiencing a mental health crisis.
- Make emergency services available within the county's mental health outpatient programs, or mental health inpatient program.
- Be organized with assigned responsibility, staff and resources so that it is a clearly identifiable program.
- Be available 24 hours/day and 7 days/week.
- Offer telephone services with a published number.
- Offer face-to-face services for crisis intervention through outpatient services during business hours, and on-call (minimum) during other hours. On-site intervention when clinically desirable.

## **Community and Consumer Needs:**

Brown County has crisis services that currently provide limited mobile outreach in addition to a telephone response system. The majority of in-person contacts, about 73%, occur at the Crisis Center, which requires a transport to the crisis center by law enforcement, the person or other resources. During the time of the transport, the person needing crisis services is in distress. Having the crisis assessment take place outside of the Crisis Center reduces a consumer transport, provides an on-site view of the consumer, and provides better consumer care.

The overall goal of this proposal is to bring services to the person in crisis safely versus bringing the person to a different location. This would enable the crisis system to provide assessments to the person in their situation and avoid unnecessary transports of the consumer.

## **Assumptions:**

There are a few assumptions being made specific to this proposal:

- The current provider can support additional staff with training and supervision.
- Cooperation between system partners including law enforcement, crisis staff, health care, human services is in place.
- There is an adequate pool of talent to recruit from.



- Safety for the crisis staff can be assured in responding.

#### **Initiative Scope:**

The expansion of mobile crisis is specific to those situations where a person is alleged to be a risk to themselves or others, and is not willing to voluntarily present for treatment. These are typically identified as "EM-1" situations, where contact has been initiated with law enforcement, often as a welfare check of the person. The Crisis Center and Human Services will explore the use of joint response in these situations.

Mobile crisis services are not to be used in response to all calls. The Crisis Center currently averages 2,000 calls per month.

#### **Initiative "Deliverables" & Costs:**

Brown County Human Services is proposing to add crisis counselors through the contracted provider in 2016. The focus of these positions is on direct consumer contact, and is intended to provide an additional 96 hours of mobile crisis services per week.

The current crisis provider has proposed improved and coordinated mobile crisis response with law enforcement in welfare check situations. This will be evaluated as part of the expansion, and will require additional data for evaluation, and the establishment of agreements.

It will take some time to recruit, hire and train staff. Since mobile crisis services are already being offered on a limited basis in Brown County, there is program experience to build on and to inform the expansion. The estimate is that it will take three months to complete the process of expanding staffing.

The estimated annual cost of \$200,000 is related to adding crisis counselors to provide mobile services, including direct staff costs, supervision and program costs.

#### **Resources:**

The resources needed for effective expansion include:

- A pool of applicants that meets basic qualifications.
- Time for supervisors and managers to be involved in the screening and interviewing of applicants.
- Physical space for new staff.
- Resources for training new staff.
- Time for existing staff to provide job shadowing experiences.

The resources needed for expansion are available due to the current program operations.

#### **Key Events and Tasks:**

The key events and tasks associated with this include:

- The transfer of funds to accounts for expenditures.
- A signed contract in place.
- Posting position announcements.
- Screening applicants.
- Interviewing applicants and making offers.
- Completing training including web-based courses and job-shadowing.
- Evaluating procedure changes with law enforcement.

**Risks:**

There are some risks identified with this proposal, and these include:

- Safety issues with increased mobile crisis response.
- Resistance to change, which creates barriers to implementation.
- Restricted access to community settings, which could reduce availability to the person in crisis.

Strategies to address these risks include:

- Working closely with law enforcement to ensure safety.
- Presenting revised protocols to key system partners to get input from them.
- Evaluating protocols and agreements to gain access to most community settings.

**Expected Benefits and Outcomes:**

There are data elements that will be tracked before and during service implementation. These include:

- The number and duration (hours) of in-person mobile crisis contacts that occur outside of the Crisis Center.
- The number and duration of diversion stays (days) 12 months prior to mobile crisis expansion.
- The amount of law enforcement time (hours) per crisis contact pre and post mobile crisis expansion.
- The number and length (miles) of client transports post mobile crisis expansion.
- The average response time for mobile crisis calls. The 2016 target is within 30 minutes.

The expected benefits include:

- An increase in the number of mobile crisis contacts, and the hours of service provided to people outside of the Crisis Center.
- A reduction in the amount of law enforcement time per crisis contact due to improved coordination and response by crisis staff and law enforcement.
- A reduction in the transports associated with crisis calls.
- A decrease in the average response time for mobile crisis calls.

